

# Become One In A Million



## Partnership Updates

Million Solar Roofs and  
Interstate Renewable Energy Council  
Annual Meeting

Washington, D.C.  
October 2005



U.S. Department of Energy

## Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy  
is clean, abundant, reliable, and affordable



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# **Building Capacity in American Markets**

## ***Executive Summary*** Annual Partnership Update Report

***October 2005***

The U.S. Department of Energy's Million Solar Roofs Initiative (MSR) is a unique public-private partnership aimed at overcoming market barriers for selected solar energy technologies.<sup>1</sup> As the program matures, capacity building in solar industries also has become a key objective.

With limited government funding, the Initiative invests in people -- its national network of official Partnerships -- by offering opportunities for them to compete for modest grants (\$10,000-\$50,000). Partnerships use the grant funds as seed money and to leverage additional funds.

DOE also arranges for Partnerships to receive technical and analytical assistance from two of its laboratories, Sandia and the National Renewable Energy Laboratory. The Interstate Renewable Energy Council provides program and communications support, and a private sector contractor supplies specialized analysis and technical assistance.

MSR Partnerships conduct their work through networks of local partners. The Initiative welcomed five additional Partnerships in 2005, bringing the total to 94. The new Partnerships are as follows:

- In the California/Nevada region, Tahoe-Nevada
- In Northeast Colorado, Farm Focus Colorado
- In Southeast Colorado, Solar Energy Coalition
- In Southwest Nebraska, Farm Focus Nebraska
- In New York, City University of New York MSR Collaborative

Sixty-four new partners joined Partnerships across the country, for a national total of 886.

### **Who Are Our 886 Partners?**

Partners fall into a variety of categories:

- *Electric and Gas Utilities:* investor-owned utilities, rural electric cooperatives, municipal utilities, and other energy providers;
- *Private Sector, Buildings:* construction firms, builders and developers, plumbers, electricians, architectural and design firms, builder associations, individuals
- *Private Sector, Solar:* solar equipment manufacturers and aggregators, an inverter manufacturer, distributors, retailers, installers, corporations, individuals
- *Private Sector, General:* banks, financiers, trade associations, property management, graphics

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<sup>1</sup> Eligible technologies are photovoltaics (PV), solar water heating, transpired solar collectors, solar space heating and cooling, and pool heating.



- *Labor*: International Brotherhood of Electrical Workers
- *Government, Local*: municipalities and associations; mayors' offices; housing authorities; departments of parks and recreation, planning, natural resources; brownfields agencies
- *Government, State*: energy offices, economic and community development agencies, consumer advocates, departments of environmental quality; NY Board of Fire Underwriters
- *Government, Federal*: U.S. EPA, U.S. DOE, Western Area Power Administration, USDA Forest Service, national laboratories
- *Non-profit organizations*: Chambers of commerce, Habitat for Humanity, Low-Income Weatherization providers, environmental groups
- *Agricultural*: resource conservation and development districts, poultry associations
- *Academia*: colleges and universities, community colleges, science centers, schools and school districts
- *High Visibility*: National Aquarium at Baltimore, Shea Stadium
- *Sovereign Nations*: Nez Perce

Partnerships with an especially large number and diverse array of partners are the **San Diego Regional Energy Office**, with 71 partners; the 62-partner **Bay Area Solar Consortium**, led by the City of San Jose (CA); and the **Long Island Solar Roofs Initiative**, with 42 partners (including Shea Stadium!).

### *2005 Partnership Updates*

Following is a sampling of activities undertaken by MSR Partnerships this year. This is by no means exhaustive, and readers are strongly encouraged to read the full *Annual Report* to appreciate the robust and exciting achievements of MSR's many and diverse solar champions.

#### *Over time, Partnerships have developed their own unique "voices" and focus.*

- **Montana** and **Chicago** are using PV for energy emergency planning purposes. Montana is placing 2-kW PV systems on fire stations, for uninterruptible power. Chicago will host a meeting of 250 regional mayors re.the role of solar energy in emergency planning and operations.
- **Delaware** has partnered with the state's poultry industry to incorporate solar thermal in its operations.
- **San Diego** partnered with Kyocera Solar to give homeowners affected by recent wildfires larger financial incentives for PV than otherwise are available.
- The primary focus of the **Brockton (MA)** Partnership is its proposed 500-kW solar "Brightfield," proposed for creation on a brownfields site. **Iowa** also is working on converting a brownfield to a brightfield.
- **Arizona** and **Nevada** are collaborating to explore the potential of solar thermal to meet some of their states' substantial air conditioning needs.
- **New York** State Energy Research and Development Authority (NYSERDA) reports that it is making industry capacity-building its #1 priority.
- **Maine** is reaching out to the faith community.

#### *Several Partnerships "leverage" the resources and expertise of other programs.*

- **New Hampshire** partners with the Low-Income Weatherization Program to provide solar water heating for program-eligible residences and conduct training for installers.
- **Maryland** leverages the resources of BP Solar, which recently expanded its manufacturing plant in Frederick and donated more than \$100,000 of PV modules to local schools.
- Efforts in **West Virginia** and **Marin County (CA)** have an important GIS element. Marin uses GIS tools to identify commercial roofs with promising potential for rooftop PV. It parlays the information into a targeted consumer awareness program, extending site assessments and training to those that respond to a direct-mail offer. West Virginia partners with Shepherd University.

## ***Partnership Efforts To Mitigate Market Barriers***

Partnerships identify market barriers and target some of them for mitigation. Barriers are consistent across the country, and they are similar to those faced by other distributed energy technologies: initial capital cost, lack of consumer awareness, utility interconnection issues, and industry capacity issues (*e.g.*, qualified installers).

Following are some MSR efforts aimed at overcoming cost, consumer awareness and industry capacity barriers.

### ***Initial Capital Cost***

- Some Partnerships focus on solar technologies with lower capital costs – primarily, water heating: **Pennsylvania**, **Vineyard (MA)**, and most Partnerships in the **Southeast Region**.
- **San Jose (CA)** has secured 1200 “orphaned” panels from the Sacramento Municipal Utility District and is set to begin its “Adopt-a-Panel” program.
- **Great Lakes** reports that “Go Solar Ann Arbor” is poised to reduce solar system costs through an aggregated purchasing program.
- **Santa Barbara (CA)** is developing a business plan for an enterprise that would finance solar systems for consumers and eliminate the up-front capital costs altogether. They also are creating a “Sunny Day” fund to augment state and federal incentives.

### ***Consumer Awareness***

#### ***1. High-visibility projects***

- **Salt Lake City** will add 20 kW of PV to the planned expansion of the Salt Palace Convention Center.
- **Anaheim (CA)** uses PV to shade picnic tables in a housing development and has installed PV on the Tiger Woods learning center.
- **South Carolina** refurbished an old solar water heating system on a county jail. Solar now meets a third of the jail’s water heating needs, saving \$2,556 annually.

#### ***2. Websites [See individual Partnership Updates for URLs.]***

- **Vermont**: The website includes information about the following: how solar electric and hot water systems work; the economic and environmental benefits of renewable energy; incentive program details; how to locate dealers; advice for making better purchase decisions, etc. The website also includes financial calculator, the Clean Power Estimator (which VT plans to expand to include financial analysis for solar water heating).
- **Long Island**’s “Llshines” website calculates the exact rebate for PV purchases and sends out automated bid requests to qualified solar contractors of the customer’s choice.
- **Salt River Project (AZ)** has “SolarCalc,” an on-line calculator to provide easy, convertible financial information for prospective solar customers.
- **Kentucky** has created “Sun Pages,” an on-line directory of renewable energy and green building professionals.

#### ***3. Cultivating Highly Visible Partners***

- **San Diego** estimates that partnering with Home Depot to publicize their Solar Homes tour doubled the number of people taking the tour.

### ***Industry Capacity***

#### ***1. Need for Qualified Installers:*** This need was identified by **Nevada**, **Vineyard (MA)**, **Rhode Island**, and others.

- **Idaho** offers partial scholarships to rural electric cooperatives, to encourage them to attend a PV training session.
- **Georgia**, **Idaho**, **New York**, and **Texas** hosted installer certification examinations for the North American Board of Certified Energy Practitioners.

2. *Inadequate Solar Information in the Building Industry*
  - **Aspen (CO)** conducts “Architects Teach Other Architects” training.
3. *Inadequate Solar Information in Local Government* (especially among permitting, code and inspection officials)
  - **Northern Colorado** and **New York**, among others, conduct workshops and training, and provide targeted information.
4. *Repairing old and “orphaned” systems*: **San Luis Valley (CO)**, others
  - Working through technical high schools, **Cape Cod** is training trades people to repair and “bring back on line” solar thermal systems.

#### **Innovative Facilitating Public Policies**<sup>2</sup>

- The CA Public Utilities Commission classifies solar water heating as an energy efficiency measure and requires that regulated utilities include solar hot water incentives in their proposed energy efficiency programs starting in 2006.
- Washington State: The legislature passed two landmark pieces of legislation in 2005. One provides tax breaks for solar manufacturers; the other establishes power production incentives modeled after the German “feed-in” tariffs. Together, these laws are expected to radically reshape the market “playing field” in the state.

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<sup>2</sup> These policies were reported by Partnerships in their *Updates* but are not Partnership projects. Partnerships provided technical assistance at the request of decision makers.

# Central Region

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## Regional Office Report

### **Colorado**

Center for ReSource Conservation, Boulder  
Colorado Renewable Energy Society Statewide Partnership  
Colorado Western Slope MSR Initiative  
Community Office for Resource Efficiency, Aspen  
Northwest Colorado Initiative  
San Luis Valley MSR Partnership  
SolarBound (The MSR Initiative for Northern Colorado)

### **Montana**

Montana MSR Partnership

### **Nebraska**

Farm Focus Nebraska

### **New Mexico**

Neighborhood Solar, Albuquerque

### **Texas**

Solar San Antonio, Inc.  
Texas MSR Partnership

### **Utah**

Salt Lake City MSR Partnership



# **The Solar Year in Review For the Central Region**

*Prepared by the Central Regional Office*

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## **COLORADO**

### **Northwest Colorado Partnership, Sunsense, Inc.**

#### **Accomplishments:**

- Installed first grid-tied PV systems and currently working with three rural electric cooperatives on interconnection/net metering policies. Agreements are in place to net meter at 4.6 cents/kWh.

- Installations: 3 systems

#### **Activities Underway:**

- Interconnection training for utility/county/city building department staff
- Solar Schools: Seven middle schools receiving 1.5kW systems donated by the Sierra Club. Schools will also receive “A World of Energy” renewable energy curriculum recently developed by Sunsense, and a monitoring system designed by Fat Spaniel, which hosts a website connecting many solar schools across the country and provides details of the system output.

#### **Upcoming Events:**

- Workshop for local residents on general solar system education – mid August 2005
- Solar Education Station manned at Steamboat Springs Farmers Market – July-August 2005
- Solar Home Tour – October 2005

## **SolarBound (Northern Colorado)**

#### **Accomplishments:**

- Development of two workshops for building professionals – Zero Energy Homes and Building Solar (for commercial building professionals)
- Installations: 5 systems

## **Activities Underway:**

- Education of local government officials to encourage adoption of solar implementation policy
- Fundraising for solar thermal system on high school
- Planning for interconnection seminar for utility officials

## **Upcoming Events:**

- Solar Education Day at Discovery Science Center – August 12
- Sustainable Living Fair – September 17-18

## **Focus Areas/Key Challenges:**

Marketing: A complete package with a standard format for flyers, e-mails, and posters; development of a checklist to help organize marketing tasks and strategies; a central MSR calendar for workshops, highly visible to the public or segmented by interest group (educators, building professionals, developers, general public, and homeowners).

## **San Luis Valley (SLV RC&D)**

#### **Accomplishments:**

- A Return on Investment (ROI) analysis of various solar technologies, and four homes have been selected – a Habitat for Humanity Home, a ranch style home, a mobile home and a typical two-story home. They were modeled using DOE-2 and other software inputting their location, orientation, size, and other details along with utility data. Local installers provided current costs for passive, thermal and PV systems. All this data was used to stimulate the impact of installing solar technologies in those homes to arrive at return on investment numbers. The ROI information will be used to convince local residents on the possibilities of solar, especially passive solar, solar hot air and solar thermal applications.
- Development of a San Luis Valley Solar Association of all stakeholders who have an opportunity to network and build the infrastructure for a solar community, consisting of solar installers and the local Habitat for Humanity Chapter.

**Activities Underway:**

- The highest priority activity is educational, (promoting solar in the region through open forums and seminars on various topics including all technical and business analysis for the MSR partner constituents.

**Upcoming Events:**

- Community forums on the Return on Investment (ROI) Analysis and Zero Energy Homes.

**Community Office for Resource Efficiency (CORE)****Accomplishments:**

- Influenced the design of Burlingame Public Housing (Aspen) to ensure that all 240 units will have solar thermal domestic hot water and energy efficient appliances, with units being built to DOE Building America specifications. Bus shelters will also have PV systems.
- Completed construction of two highly energy efficient affordable homes at Blue Creek Ranch in 2004. The homes were featured in Environmental Building News, and received an award in the affordable housing category from the Colorado West Chapter of the AIA.
- Five seminars were held for architects, contractors and homeowners to view the construction of the Blue Creek Homes from foundation to installation of the solar panels.
- Hosted a Solar Energy International Green Building class with contractors and architects who viewed the completed homes and learned about the building construction and social planning processes.
- Installations: 189 solar hot water for domestic hot water and/or radiant floor heat; 40 PV installations for a total peak rated output of 81kW

**General Comment:**

CORE has made significant, impressive headway in establishing a solid infrastructure for promoting energy efficiency and solar technologies, and is viewed as one of MSR-Colorado's leading partnerships. CORE has become recognized as one of the key players in green building and renewable energy for public projects.

**Activities underway:**

- Burlingame D affordable housing just passed its second citizen referendum and should break ground for 240 units of affordable housing with solar this summer.
- Continued consultations with Roaring Fork School District for four new schools. CORE is

providing assistance on integrated design, modeling and commissioning and potential LEED Certification.

- Advising on design of Carbondale Recreation center and Thunder River Theater for solar components and energy efficiency.
- Organized a tour of the Blue Creek Ranch homes for a Solar Energy International Green Building class.
- Working with architects on new affordable housing in Basalt, Colorado.

**Upcoming Events:**

- Scholarships will be awarded to two students so they can participate in a PV installation course at SEI, which will result in the installation of PV panels on the City of Carbondale's Town Hall.
- Hosting Renewable Energy Day in Aspen – August 2005
- Solar Home Tour – October 2005

**Colorado Renewable Energy Society (CRES)**

**Accomplishments:** With recent passage of Colorado's Amendment 37, Colorado's largest utilities are on the path to providing rebates, beginning in early 2006, to homeowners and businesses who install PV. CRES has seized the opportunity to provide extensive education to the public and worked closely with utilities, solar companies, and other Colorado MSR partnerships related to implementation of the legislation.

**Activities Underway:** CRES and the Colorado Energy Science Center have conducted solar educational outreach throughout 2005, and will intensify its efforts related to final rulemaking related to Amendment 37, and subsequent rebate levels, interconnection rules, net metering rules, treatment of renewable energy certificates, and administration of solar programs.

**Upcoming Events:**

- CRES has received a commitment from Xcel Energy-Colorado to partner in its solar public education and outreach activities once Amendment 37 solar rules and program designs have been finalized.
- CRES and the Colorado Energy Science Center have set workshop dates following the Tour of Solar Homes on October 1-2. CRES is assisting with publicity and organization of Tour activities in both the Denver and Boulder areas.
- Upon receiving clarification regarding PV rebate levels are known, CRES plans to hold

eight solar educational events, including solar workshops and solar fairs.

**General Comment:** CRES has developed numerous tools and resources related to Zero Energy Homes, Solar Economic Study and Analysis Spreadsheets, and other materials for solar marketing materials for builders.

## **NEBRASKA**

### **The New Center, “Farm Focus Nebraska”**

**Objectives:** The New Center is a new Phase 1 MSR Partner, whose strategy is to increase solar installations and raise awareness of the benefits of solar in the rural communities of Nebraska.

## **MONTANA**

### **National Center for Appropriate Technology (NCAT)**

**Accomplishments:** NCAT projects have increased the number of solar energy installations in the state, expanding community demonstrations to include schools, libraries, law enforcement buildings, and city halls. Recent funding for MontanaGreenPower.org was received from NorthWestern Energy, which will keep Montanans informed about renewable energy news and related topics. NCAT also received funding for continuation of the Solar Fire Station project that will result in the installation of six additional uninterruptible power supply two-kilowatt systems in the NorthWestern Energy electric service territory.

The Montana MSR partnership played a major role in promoting legislation that would increase the role of solar energy in Montana.

**Installations:** 597

**Solar Schools:** 27

**Activities Underway:** NCAT developed and distributed builder/architect and homebuyer brochures that outline the benefits of solar and energy efficiency in new home construction. The brochures were distributed at several home shows and homebuilder meetings in Montana. NCAT has also developed articles and press releases on the benefits of solar technology in Montana for organization newsletters and major newspapers. NCAT is currently registering builders for the solar electric incentive from NorthWestern Energy.

## **TEXAS**

### **Solar San Antonio**

**Accomplishments:** Solar San Antonio recently moved into new office space, which is new and unique to San Antonio. The showcase office (Sustainable Energy Center”) is also occupied by the Metropolitan Partnership for Energy, and Stephen Colley Architecture. The facility utilized sustainable building materials and energy efficiency components.

The partnership hosted workshops at local High Schools, in which over 30 teachers attended. An additional workshop was focused on “Solar Hot Water Heating and Installation”, with over 50 individuals attending. The workshop was followed by an actual installation a housing unit on Brooks City Base in March 2004.

#### **Upcoming Events:**

- Renewable Energy for the Classroom Workshop – November 2005
- High School Renewable Energy Workshop – March 2006
- SolarFest – June 2006

## **UTAH**

### **Salt Lake City, Office of the Mayor**

**Accomplishments:** PacifiCorp/Utah Power have committed \$100,000 (funded by the Green Power Program) for a PV installation in Salt Lake City. Their commitment requires a minimum 30% match. They have also committed to partnering with the Salt Lake City Million Solar Roofs partnership for assisting in the development of a PV buy-down program in their upcoming rate case.

**Installations:** 14kW net metered installations

**Activities Underway:** The partnership is in the process of securing matching funding for the Salt Lake City PV project. The MSR partnership continues working with Salt Lake City and Salt Lake County to include a large 20kW PV system on the planned expansion of the Salt Palace Convention Center.

**Upcoming Events:** Education and outreach is being performed at farmer’s markets and other community events. The MSR partner has also formed a Utah Solar Working Group.



# Center for ReSource Conservation

## Partnership Lead Organization

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Website Address: [www.conservationcenter.org](http://www.conservationcenter.org)

## Other Partners

Colorado Renewable Energy Society,  
Colorado Energy Sciences Center

## Year of Formation

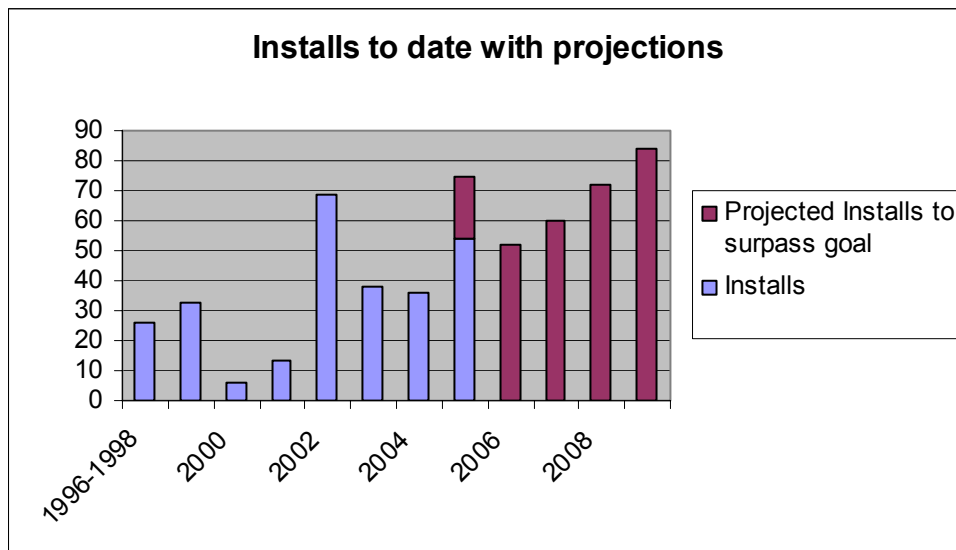
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## Million Solar Roofs Installation Goal

Goal is 500 systems by 2010

Mission Statement: The Center for ReSource Conservation is committed to leading Colorado residents, businesses, and municipalities towards a sustainable future

## Cumulative Installations



The following are estimates. I am fairly certain that these numbers are significantly undercounting actual installations. I am currently working on refining our tracking systems and filling in the substantial gaps that exist. This involves re-establishing relationships with solar installers, requesting updated information and contacting solar installers that were not previously being tracked. All information is being tracked in a database.

Total installs to date: 275

Total installs 2004: 36

PV installs 2004: 22 systems/51.275 kW

SHW installs 2004: 14

## **Leveraged Resources**

We are working to leverage funding from several organizations to create incentives or other supports to increase solar installations. These include:

- Boulder County/Drop in the bucket program: \$30,000 towards the Orphan Solar Program
- Energy Outreach Colorado Program: \$44,000 towards installation of 11 solar thermal systems on low income housing in 2004/ additional funding being sought for approximately 43 low income units in North Boulder. Approximate funding request will be: \$172,000
- Boulder Solar Home Tour: Additional funding leveraged for Tour, workshops and associated activities and support materials through sponsorships: \$13,750
- Xcel Energy/Renewable Energy Trust: \$50,000 for installation of PV system on Boulder Shelter for the Homeless

## **Outreach**

- Number of workshops held, kinds of audiences, & attendance
  - Solar hot water workshop for homeowners – approx 35 participants
  - Solar PV for homeowners – approx 35 participants
  - Installing PV for homeowners – 6 participants
  - Developing a community plan for our energy future (in collaboration with City of Boulder, Boulder Chamber and BREEE – approx. 120 participants (mostly energy industry)
- \* 2004 was a transition year for the CRC's energy program, with a change in the energy program director position forced a vacancy in the position for about 6 months. Several additional workshops are being planned for 2005.
- Average number of website visitors –  
CRC and ReSource Websites: 25,000 per year
- Number of brochures, guides, directories, *etc.* printed and distributed
  - Solar home tour booklets – 800
  - Brochures – 2000
  - Solar Referral sheets – 500
  - Solar hot water brochure - 300
- Number of news articles, press releases  
Approximately 6 in 2004, including Solar Home Tour coverage
- Number of public events & estimated attendance  
Solar Home Tour – approximately 500 participants, mostly homeowners

## **New and Noteworthy Accomplishments**

Over 3,000 people to date have received information about solar systems through our education, training and technical assistance programs

Largest solar thermal installation in Boulder County at North Boulder Rec Center.

New installation on the Boulder Homeless Shelter will be largest PV system in Boulder County

Approximately 25 calls per month on Renewable Energy Hotline

Additional major accomplishments listed under #9 above.

The CRCs is currently developing and implementing a multi faceted strategy to increase deployment of renewable energy technologies, including promoting upcoming Xcel energy rebates, new and expanded educational programs, expanded Solar Home tour/Solar Week activities, leveraging funding to implement/install systems in low income housing as well as other new solar deployment, beginning school solar curriculum and demonstration facilities, creating a lending library, massive marketing and media campaign, and development of the Energy Center of the Rockies – a cutting edge demonstration and learning facility that will provide a wide range of energy efficiency and renewable energy programs to Front Range contractors, architects, homeowners, etc. and many other programs.

## **Activities Underway**

Additional details under #9 above:

- Orphan Solar Program – CRC has leveraged \$30,000 to refurbish 25+ year old solar thermal systems in Boulder County. To date, more than 40 homeowners have submitted applications to participate in the program. We anticipate that this funding will pay for more than 60 systems to be repaired/refurbished.
- Solar Week – Featuring the Boulder Tour of Solar and Green Built homes – includes 1 all day solar workshop, 2 evening solar workshops, one green building and one climate change workshop, Bio-diesel bus tour, 10 new homes, educational CD ROM for all participants, Solar and green building expo, and other events/activities.
- PV system on the Boulder Shelter for the homeless – will be largest PV system in Boulder County. Expected installation in September 2005.
- Solar thermal systems for low income housing – new funding request will provide for 43 new systems
- Energy Center of the Rockies - Through a broad range of outreach efforts, programmatic initiatives, and support services the ECR helps consumers and building industry professionals utilize proven, market-ready measures and technologies that reduce energy demands and costs, increase the use of clean energy generation resources and create a more sustainable, long-term energy base. Currently in site identification and fundraising phase.
- Solar/renewable energy permitting and zoning review and simplification – currently working with the City and County of Boulder to simplify permitting policies for renewable energy technologies to help reduce burdens/barriers and costs associated with the permitting process at both the City and County levels. CRC is providing input, lobbying for low cost, over the counter permitting process and will provide training to permitting and planning departments on new policies.
- Ongoing training and education for homeowners, building community and others.

## **Upcoming Events**

Partnership meetings, solar fairs, exhibits, training programs, etc.

- *Solar Week – see above*
- *SLAM FEST – sustainable living, arts and music festival – planned for 2006*
- *Ongoing and expanded training and education programs*
- *New solar schools curriculum programs – planning in progress.*

**What We Could Use Help With**

The largest barriers right now are financial as well as PV panel supply.

We would love to see the DOE take on a major marketing campaign aimed at demystifying and promoting solar to the general public.

**Progress toward Our MSR Goal**

As mentioned, I am not confident in the tracking that has been done to date on solar installs. However, according to current tracking numbers, we are essentially on target, having installed more than half of the systems in our goal, half way through the goal period. Further, I anticipate that with the implementation of Amendment 37 Xcel rebates, Boulder County will be on target to reach its goal and most likely significantly exceed this goal.

The CRC's energy program is under new management. Installation and re-powering of solar systems, leveraging direct funding for solar installations, as well as accurate tracking are major objectives of the CRC's new solar energy program. It is anticipated that our MSR program will undergo a transition that will drastically increase the deployment and installation of solar systems in Boulder County as a result.

# Colorado Renewable Energy Society Statewide Partnership

## Partnership Lead Organization

Contact Person: Patrick Keegan

Contact Title: Executive Director

Contact Organization: Colorado Energy Science Center

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Phone Number: 303 216 2026 ext102

Fax Number: 303 237 0992

Email Address: pkeegan@energyscience.org

Website Address: www.energyscience.org

## Other Partners

Partnership organizations with an asterisk (\*) have joined in the past year.

- Aspen Homes
- Colorado Coalition for New Energy Technologies
- Colorado Governor's Office of Energy Management and Conservation
- Eco-Build
- E-Star Colorado
- Center for Resource Conservation\*
- Home Builders Association of Metropolitan Denver – Built Green
- Industrial Solar Technologies
- International Center for the Advancement of Sustainable Technology\*
- Lightly Treading, Inc.
- Millennium Energy LLC,
- Solargenix
- Xcel Energy\*
- Sunjuice\*
- Tierra Concrete Homes.

## Year of Formation

2000

## Million Solar Roofs Installation Goal

The CRES MSR Implementation Goal is to facilitate the installation of 5,000 solar rooftop systems in the State of Colorado by 2010. With the passage of the citizen-initiated statewide Renewable Portfolio Standard Amendment 37 on November 2, this goal should be far exceeded.

Mission Statement: The Colorado Renewable Energy Society increases the awareness of the economic and environmental benefits of solar, wind, biomass, geothermal, and energy efficiency technologies. CRES believes in a strong economy, secure energy future, and environmentally sensitive energy infrastructure for Colorado. We believe that renewable energy and energy efficiency are cornerstones of these ideals.

## Cumulative Installations

Last year, The CRES Statewide Partnership estimated there were 175 grid-tied PV installations in the state of Colorado. Since that time, CRES has contracted the Colorado Solar Energy Industry Association to set up a tracking and monitoring system. A survey of solar contractors has been conducted to quantify the number of solar systems installed since 1997, but this survey is not yet complete.

## Solar Schools

The Colorado Energy Science Center (CESC), which manages the MSR work for CRES, has made a strong effort in support of solar schools in the last year. There have been 30 solar PV systems installed on schools in Colorado through Xcel Energy's Solar Schools Program. But only a few of them are utilizing the solar energy education materials they were provided. CESC has recently obtained a grant from Xcel Energy to improve this situation. A middle school was selected, through a student contest, as recipient of a new PV system. CESC is assembling a model solar energy curriculum, indexed to the State's math and science standards, to be offered in a number of different classes at the middle school during the 2005-2006 school year. These new materials will be refined

and offered to schools with solar systems and schools interested in studying solar energy.

### **Leveraged Resources**

The CRES Statewide MSR Partnership has been able to leverage other activities and events to great advantage:

- The Colorado Renewable Energy Conference is the state's premier energy event, attracting hundreds of participants to workshops, seminars and exhibits. A small amount of MSR support for specific activities at this event translates into broad exposure for solar technologies.
- The Tour of Solar Homes is offered in several Colorado locations. CRES runs the Denver tour. A small amount of MSR support provides solar workshops and leverages a large amount of publicity and exposure generated by CRES for the Tour.
- The Colorado Energy Science Center publishes Smart Energy Living™, a magazine that helps consumers make decisions on energy efficiency and solar. It reaches about 200,000 readers each year. A small amount of MSR support to produce solar articles for the magazine results in massive exposure for solar technologies, programs and for the MSR partnerships in Colorado.

### **Outreach**

We have held 10 solar education workshops between October and June that have drawn homeowners, homebuilders, and advocates. The average attendance at these workshops has been around 27. We are planning three more solar workshops before the end of the fiscal year that are expected to draw an average of 40 people. All workshops are publicized through a network of newsletters, press releases, and the web. We have participated in six different public events, such as Earth Day events and fairs, which have exposed an estimated 5,000 seniors, homeowners, homebuilders, and environmental advocates to the solar message. We will participate in 3 more fairs in the next few months to reach about 3,000 more people.

We sponsored an all day "Building the PV Market in Colorado" workshop, attended by 90 people on February 22, 2005. The event attracted representatives from five Colorado electric utilities, four out of state electric utilities, national PV

manufacturers, local and state government, policy analysts, and the solar industry.

We published the Spring/Summer Smart Energy Living magazine which featured articles on Amendment 37, passive solar architecture, as well as numerous references to solar power and the companies and organizations that support it. By the end of the fiscal year, we will be publishing and distributing the Fall/Winter Smart Energy Living magazine which has two articles devoted to solar power, as well as numerous references to solar power and the companies and organizations that support it. These two issues of the magazine were distributed to building officials statewide, as well as homeowners and industry leaders, for a total readership of 200,000.

In addition to Smart Energy Living magazine, for every workshop we publish an e-newsletter that is e-mailed to 6,000 homeowners and businesses, and a newsletter that is mailed out with a readership of 10,000.

### **New and Noteworthy Accomplishments**

With the passage of Amendment 37 on November 2, 2004, Colorado's largest utilities are on the path to providing rebates, starting in early 2006, to homeowners and businesses who install PV. Because of this opportunity, our MSR work has been fortified. We are now in a far better position to educate the public and work closely with utilities and solar companies. Approximately \$25 million per year of utility rebates will be extended to homeowners and businesses for the installation of solar electric systems in Colorado. The rules for Amendment 37 have not yet been issued by the Colorado Public Utilities Commission, and the utilities have not yet prepared their solar implementation plans. It is expected that rebates will be available in the first half of 2006.

### **Activities Underway**

CRES and CESC have conducted solar educational outreach throughout the year. At present, leaders in the renewable energy community are creating the rules that will govern the new solar program. The rules include rebate levels, interconnection rules, net metering rules, treatment of renewable energy certificates, administration of the solar programs, etc. The CRES Statewide MSR Partnership is preparing for the beginning of the new solar program and has received a commitment from the

largest utility in Colorado- Xcel Energy- to partner in solar public education and outreach activities once the rules and program designs have been finalized.

### **Upcoming Events**

CRES and CESC have set workshop dates in the lead up to, during, and following the Tour of Solar Homes on October 1 and 2. We are assisting with the publicity and organization of TSH activities in both the Denver and Boulder areas. Once clarifications concerning PV rebate levels are known, we plan to hold eight solar educational events in fiscal year 2006- including workshops and solar fairs.

### **What we could use help with**

The key to successful implementation of a solar program in Colorado is a solid set of rules and a strong program design. The renewable energy community is participating in the rulemaking discussions. Final rules are expected to be issued in October 2005

### **Progress toward our MSR goal**

We are on target to meeting our MSR goal. We expect to exceed our goal once the utility rebates are offered to consumers

# Colorado Western Slope MSR Initiative

## Partnership Lead Organization

Delta Montrose Electric Association  
Contact Person: Ed Thomas  
Contact Title: Program Manager for DMEA  
Contact Organization: Intermountain Energy's  
Market Development Division

## Other Partners

Intermountain Energy, area solar energy system installers

## Year of Formation

2003

## Million Solar Roofs Installation Goal:

500 by 2010

### *Mission Statement:*

1. Encourage the installation of at least 500 solar systems within DMEA's service territory by 2010, focused primarily on grid-connected systems.
2. Create a program template for other leading energy utilities to consider the financing of Solar Roofs
3. Educate utility staff and stakeholders in the value of marketing, selling, financing, installing, and servicing Solar Roofing systems.
4. Encourage other energy utilities throughout the region to implement similar programs.

## Cumulative Installations

12 grid-connected installations confirmed in Montrose and Delta counties alone

## Solar Schools

None

## Leveraged Resources

Partnership is fully-funded by Delta-Montrose Electric Association for activities within its service territory in 2005. Most recent grant application to

expand activities includes matching funds from DMEA with in-kind contributions by Tri-State Generation and Transmission Association, La Plata Electric Association, and Empire Electric Association.

## New and Noteworthy Accomplishments

DMEA's Board of Directors was among the few utilities to support the Colorado Renewable Energy Standard Amendment 37 Initiative. In April 2005, DMEA's Board enhanced its Net Metering Policy to made the policy a model for other utilities that want to support members/customers who choose to generate their own electricity and "sell it back" to DMEA at full retail prices. A copy of the enhanced DMEA Net Metering Policy is available online at <http://intermountainenergy.com/docs/NetMeteringPolicyApril05.pdf>.

In May 2005, Ed Thomas presented to the National Association of Rural Electric Cooperative Association's "Connect 2005" Communications and Marketing Conference in New Orleans on DMEA's energy vision which includes its commitment to the Partnership. In June 2005, a complete description of the Partnership's past and present activities was posted online at

<http://intermountainenergy.com/SolarRoof.htm>.

Also in June 2005, DMEA provided support to a National Science Foundation grant application by the School of Mines' Fuel Cell Center. While the focus is fuel cells, the overall goal of the grant application is to develop a clean technologies' curriculum that leverages solar, wind and other sustainable technologies.

## Activities Underway

As mentioned on the Million Solar Roof national website, DMEA is partnering with the Colorado Energy Science Center (CESC) and more than 14 area businesses to present a Home Energy Makeover Contest in which DMEA members have the opportunity to win up to \$25,000 in energy-related home improvements. Ten DMEA members with higher-than-average home energy bills will be chosen as finalists from the contest applicants. The DMEA member with the greatest potential to demonstrate home energy savings will win up to



\$25,000 in energy-related home improvements. The first and second runners-up will receive up to \$10,000 in energy-related home improvements. The seven remaining member/finalists will receive a comprehensive energy analysis of their home with specific recommendations on how best to cut their utility bills. The energy analysis conducted and published on each finalist's home will detail how the improvements recommended would not COST members money, but rather MAKE members money every month.

"One of DMEA's goals is to reduce our members' overall energy consumption by 25% by 2010. This contest is designed to showcase that energy efficiency measures in homes are a one-time investment that pays off every month in lower energy bills and reduced maintenance costs," explained Steve Metheny, DMEA's Chief Operating Manager.

While this contest does not have a solar energy component, the Partnership hopes that strong response for this program template may lead to the development of a "renewable energy" variation of the Contest in 2006.

### **Upcoming Events**

The Partnership's most recent grant application proposes to build on previous successes to leverage the "power" of neighboring electric cooperatives to expand into a Southwest Colorado Partnership to include the cities of Grand Junction, Gunnison, Durango, Telluride and Cortez; and the counties of Delta, Montrose, Dolores, Ouray, San Miguel, La Plata, Mesa, Montezuma, Gunnison, Garfield, Hinsdale, Saguache, Archuleta, and Mineral.

To achieve this, the existing Partnership would launch a peer-to-peer, direct marketing campaign to recruit up to 5 of DMEA's neighboring electric cooperatives (i.e. Grand Valley Power, Gunnison County Electric Association, San Miguel Power Association, LaPlata Electric Association, Empire Electric Association) and DMEA's wholesale power provider (Tri-State Generation and Transmission Association) to help expand our Partnership. These utilities have the potential to become focal points for recruiting additional MSR partners within the utilities' service territories. DMEA and Intermountain Energy will showcase past success while working to persuade the utilities to become the lead facilitator of discussions and activities that promote more solar installations in their areas, as DMEA has done.

To reach out to utilities, the Partnership will organize and present regional Summit (i.e. conference) that brings together utility management and staff with other potential Million Solar Roof stakeholders to present best practices and lessons learned in the promotion of more solar installations. This will be accomplished by presenting the subject in the context of integrated resource planning for utility-sponsored initiatives that address the renewable energy, energy efficiency and demand management needs of locally-owned utilities and their members/customers.

The passage of Colorado Amendment 37 offers a unique moment in time to leverage DMEA's own "small, cooperatively owned utility" leadership and experience with program material from solar energy programs soon to be launched by the region's large, investor-owned utility, Xcel Energy. DMEA's timely outreach effort should affirm that the senior management of smaller, locally-owned utilities in S.W. Colorado and beyond would do better to proactively embrace and promote the values of Million Solar Roof Initiative now, rather than risk having to react to initiatives driven by its members later.

DMEA is uniquely qualified to support Million Solar Roofs in this initiative because it is highly credible as a peer to other utilities, and a regional leader in renewable energy and energy efficiency programming.

### **What we could use help with**

The Partnership values the regional and statewide Partnership Working Group meetings and other on-going support from its DOE Regional Office, and we look forward to working closely with the Office upon acceptance of the recent grant application to broaden our Partnership throughout Southwestern Colorado.

# Community Office for Resource Efficiency

## Partnership Lead Organization

Contact Person: Randy Udall

Contact Title: Executive Director

Contact Organization: Community Office for Resource Efficiency

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Phone Number: 970 544 9808

Fax Number: 970 963 5691

Email Address: outreach@aspencore.org

Website Address: www.aspencore.org

## Other Partners

- City of Aspen Building Department
- GreenLine Architects, (Formerly Novy Architects)
- Holy Cross Energy
- Renewable Energy Mitigation

## Year of Formation

2002

## Million Solar Roofs Installation Goal

CORE's MSR Implementation Goal is to facilitate the installation of 500 solar rooftop systems in 500 in the Roaring Fork Valley.

Mission Statement: CORE works to promote renewable energy installation and use by businesses and households in the Roaring Fork Valley and beyond through public education and cash incentives for solar installations and energy efficient appliances.

## Cumulative Installations

2004 installations: solar thermal panels, 73 panels, 4 homes have radiant floor heat and domestic hot water, total of 16 panels, 498 sq. ft. There is one pool /spa where the water is heated by 9 panels totaling 288 sq. ft. 52 houses or living units are served with solar thermal panels for domestic hot water, 57 panels providing it, 1568 sq. ft.

Total sq. feet of all thermal panels installed in 2004 is 2354 sq. ft

PV: a total of 6 roofs, 7.409 kW installed (Of the above, 39 affordable housing units were supplied with thermal panels, and one affordable house with PV)

To date on July 14, 2005 cumulative total is 189 solar hot water installations for domestic hot water and/or radiant floor heat

40 PV installations with a total of 81 kW since we began giving rebates in 1998

(There are more than this in the valley, but these are the ones for which we paid rebates. It is very hard for us to track the projects that do not come to us for a rebate. Those are the projects required by the Efficient Building Guidelines. City of Aspen is trying to make their data system better able to track those so they can give us the info.)

## Solar Schools

Aspen High School, Basalt Middle School \* (, Aspen Elementary, Carbondale Elementary, Yellow Brick School now retired as schools, but used as daycare, Yampah high school, Aspen Middle School, Carbondale Community School

\*Basalt Middle School got its PV panels in 2004, included in total count

This represents two school districts.

These questions came after end of school year, so unable to obtain complete information. Can only report about the schools we currently work with directly. Basalt Middle School and Aspen High School both have teachers who very actively teach solar energy lessons, renewable energy, but we don't have info on the other schools and are unable to report on them at this time.

Real-time classroom displays of solar system output, or provision for some other student-accessible monitoring? Links to other schools?

There is a monitor at Basalt Middle school so students can see energy generated by their system in real time.

## Leveraged Resources

Renewable Energy Mitigation Fund provides the funds for our solar rebate cash incentives, and 0% interest loans through the Aspen and Basalt Community Banks. These funds cover PV and solar thermal. Customers who have Holy Cross Energy get a \$2.00 per watt installed for PV grid tied as of Sept. 2004. CORE gives \$2.00 per watt installed for PV as of April, 2005 (an increase in our rebate) and \$1000. for 2 to 3 thermal panels, \$2000. for 4 to 6 panels.

## New and Noteworthy Accomplishments

1. Worked on design process of Burlingame Public Housing with Aspen to ensure that all 240 units will have solar thermal for domestic hot water and energy efficient appliances, units built to Building America specifications. Bus shelters will have PV.
2. Completed the construction of two highly energy efficient affordable homes with our partners, Blue Creek Ranch, GreenLine Architects, Holy Cross in 2004. One house has building integrated PV and also solar thermal panels in a unique sunshade installation. The homes are on the website, [www.nextgenhomes.net](http://www.nextgenhomes.net). The success of these homes made possible the Burlingame commitments to energy efficiency and solar.
3. Held five seminars at the Blue Creek construction site with our partners for architects, contractors, and homeowners to view the building process of these energy efficient homes from foundation to installation of solar panels. [www.nextgenhomes.net](http://www.nextgenhomes.net). Hosted a Solar Energy International Green Building class with contractors and architects also attending to see the completed homes and learn about the process from a building and social planning point of view.
4. The success of Blue Creek homes helped us to get a grant from Energy Outreach Colorado to upgrade the efficiency of the five other affordable homes in the development and one of those will have solar panels.
5. Installed with REMP funds 21 solar thermals for a central domestic hot water system for 38 units of affordable employee housing at the Annie Mitchel Homestead site. Provided REMP funds for energy efficient appliances for all these units.
6. Holy Cross Energy initiated the first solar rebates of any electric company in Colorado. They pay customers \$2.00 per watt installed of PV as of Sept. 15, 2004) ,CORE gave \$1.50 per watt installed in 2004, just raised to \$2.00 a watt from CORE in 2005. CORE's solar incentives combined with those of Holy Cross Energy make solar installations more affordable here in the Roaring Fork Valley than anywhere else in Colorado. (CORE funds for solar rebates come from Renewable Energy Mitigation Program (REMP) in Aspen—money goes to all Roaring Fork Valley residents and businesses for renewable energy projects and energy efficiency projects.
7. Expanded our territory of solar and energy efficient rebates and educational programs to entire Roaring Fork Valley, not just Aspen and Pitkin County.
8. We sponsored with Holy Cross a Renewable Energy Day in Aspen in summer of 2004 and were sponsors of the Greenbuilding Conference in Snowmass in the fall.
9. Our Solar Home tour in October featured three homes, two of them strawbale with solar thermal panels for hydronic heating and domestic hot water and the other with PV and solar thermal for domestic hot water. All featured many energy efficiency upgrades and green building materials.
10. In November we co-sponsored with Holy Cross and Rocky Mountain Institute two fall home seminars on designing homes for passive solar, active solar and energy efficiency with attention paid to solar installations, our solar rebates and all aspects of green building. One seminar was in Basalt and the other in Eagle.
11. Publication of articles in the local Spanish language paper, La Mision, on home energy efficiency as well as continuing with our ads in local papers for our solar rebates.
12. May '05 highly successful solar seminar led by Sun systems-45 participants
13. Launched a monthly electronic newsletter in June 05

## Activities Underway

1. Burlingame D affordable housing just passed its second citizen referendum and should break ground for 240 units of affordable housing with solar this summer
2. Ongoing consulting with Roaring Fork School District for four new schools. Advising on integrated design, modeling and commissioning

to ensure highest energy efficiency, maximum daylighting and best air quality possible-seeking LEED

3. Advising on design of Carbondale Recreation Center and Thunder River Theater for solar components and energy efficiency
4. Working on the next 5 affordable houses in Blue Creek as per above
5. Just completed with GreenLine Architects the Solar Energy International Greenbuilding class visit to the Blue Creek Ranch solar and energy efficient homes.
6. Just received a \$27,000. Renewable Energy Trust Grant for installing 4kW of PV on Carbondale Town Hall in August 2005.
7. Consulting with the architects working on new affordable housing in Basalt. CORE has become recognized as one of the key players in green building and renewable energy for public projects.
8. We awarded two scholarships (\$1200.) to Carbondale young people to participate in the Solar Energy International workshop that will install the PV on town hall.

### **Upcoming Events**

1. Steve Baer presentation-July 19 in Carbondale , CO : a solar pioneer, presented by CORE
2. Aspen Renewable Energy Day on August 28, 2005
3. Solar Home tour in October

### **What we could use help with**

Provide a training workshop designed to instruct on procedures for completing complicated grant forms and how to better understand the Vipers System.

# Northwest Colorado Partnership

## Partnership Lead Organization

Business Contact Person: Scott Ely  
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Technical Contact Person: Susan Holland  
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Fax Number: 970-871-9001  
Email Address: [sholland@ecoisp.com](mailto:sholland@ecoisp.com)

## Other Partners

1. Sierra Club/Trappers Lake Group – Solar Schools project
2. Western Colorado Congress/Community Alliance of the Yampa Valley
3. Community Agricultural Alliance
4. Colorado State Extension Service
5. Yampa Valley Electric Association
6. Moffat, Routt, Grand, Rio Blanco Counties School Districts
7. Routt County Planning Department
8. Yampa Valley Housing Authority
9. West Elevation Architects, Inc.
10. James Brooks/Solar Alternatives
11. Eric Westerhoff/Innovative Energy
12. Mike Roberts/Habitat Construction
13. Rob Hawkins/Rob Hawkins Architects
14. Steve Eggleston/SCE Studios

## Year of Formation:

2004

## Million Solar Roofs Installation Goal

500 systems

## Cumulative Installations

3 systems to date

## Solar Schools

Currently installing 7 middle school systems with renewable education curriculum and monitoring in 4 county area

## Leveraged Resources

1. Sierra Club- \$150,000 in funding for Solar Schools project
2. Yampa Valley Electric Association- engineering time/metering equipment donated for Solar Schools project
3. Western Colorado Congress/Community Alliance- donated staff time to coordinate renewable energy citizen task force

## New and Noteworthy Accomplishments

Installing first grid-tied PV systems- working with 3 rural electric cooperatives on interconnection/net metering policies –agreements in place to net meter at 4.6 cents/kWh

## Activities Underway

1. Interconnection training for utility/county/city building department staff
2. Solar Schools – seven middle schools receiving 1.5kW systems donated by Sierra Club. Schools will also receive “A World of Energy” renewable energy curriculum recently developed by Sunsense, Inc., and a monitoring system designed by
3. Fat Spaniel, which hosts a website connecting many solar schools across the county and provides details of the system output

## Upcoming Events

1. Interconnection/net metering workshop for utility/city/county staff- mid July 2005
2. Workshop for local residents – general solar system education – mid August 2005
3. Solar Education Station manned at Steamboat Springs Farmers Market- July/Aug 2005.
4. Solar Home Tour – October 2005

# San Luis Valley MSR Partnership

## Partnership Lead Organization

Contact Person: Ravi Malhotra

Contact Title: Executive Director

Contact Organization: ICAST (International Center for Appropriate & Sustainable Technology)

## Other Partners

1. Phase 1 Applicant: San Luis Valley Resource Conservation & Development (SLVRC&D)
2. Small Business Development Center (SBDC), Business School, Adams State College (ASC)
3. Building Systems Program, College of Engineering and Applied Science, University of Colorado at Boulder (CU)
4. Colorado Energy Science Center (CESC)
5. Valdez and Associates were identified as part of the team initially, though they have not been able to participate in the formal scope of work activities.
6. Hot Stuff Controls were not identified as part of the team initially, but they have participated in the formal scope of work activities.
7. SLV Habitat for Humanity was not identified as part of the team initially, but they have participated in the formal scope of work activities.

## Year of Formation

2005

## Million Solar Roofs Installation Goal

We are in the planning phase of our MSR partnership so the final implementation plan will outline the process we will follow to meet the MSR goal of a minimum of 500 solar energy installations in SLV by 2010.

## Cumulative Installations

TBD [as mentioned above, we are in the planning phase of our MSR partnership, having completed five months to date. Even so, we have helped repair one system at the Ft. Garland community center that had not been used for a few years. We have been contacted by a local hospital, museum, city of

Monte Vista, three schools, Saguache post-office, numerous home owners, etc. We are in the process of handing over these inquiries to local solar installers and university students as their class projects. ICAST does not see it self as an installation service provider – rather as a facilitator to increase solar installations in our region, thus creating new jobs while increasing the number of solar installations. We currently are in the process of establishing a system to record/monitor the number of installations (and our phase II MSR proposal goes into more details on what that system will be)]

## Solar Schools

To Be Determined. We are in contact with three school districts who wish to pursue solar installations.

## Leveraged Resources

One example of leveraged resources entails the identification and use of local experts such as Andy Zaugg, a current solar installer. Andy wrote a comprehensive book on solar thermal technologies and installations in the 1980's. Andy also taught at local schools and Adams State College and is experienced in creating educational materials and teaching students of all ages. Chuck Reel is another local solar installer (he is the only certified installer in the SLV). We have included both Chuck and Andy as our partners in this project. Both Andy and Chuck live in energy efficient homes and utilize solar and other forms of renewable energy at their home. Audrey Lui of the local Habitat for Humanity chapter has also been recruited to join this team. As the Executive Director for the SLV Habitat for Humanity, she will be working with us to design and implement passive and active solar systems in the Habitat homes being built in the region. We continue to attract such partners and as detailed in our phase II proposal, we are beginning to develop a SLV Solar Association of all stakeholders who can network and build a solar community. The San Luis Valley was considered the hot spot for solar in the late 70's with the highest per capita solar installations because of its excellent solar resources and a community working

together to promote solar. ICAST plans to leverage the local resources to make the SLV once again a solar hot spot.

### **New and Noteworthy Accomplishments**

ROI analysis of various solar technologies using local homes – four local homes have been selected, a habitat for humanity home, a ranch style home, a mobile home and a 2-storey home. They were modeled using DOE-2 and other software inputting their location, orientation, size, and other details along with utility data (energy usage and cost). The local installers provided current costs for passive, thermal and PV systems. All this data was used to simulate the impact of installing solar technologies in those homes to arrive at return on investment numbers. The ROI information will be used to convince local residents on the possibilities of solar, especially passive solar, solar hot air and solar thermal applications.

### **Activities Underway**

In addition to those listed above – the highest priority activity for this MSR partnership is educational i.e. promoting solar in the region thru open forums and seminars on various topics including all the technical and business analysis our partners are involved in.

### **Upcoming Events**

ROI Analysis and Zero Energy Homes community forums.

### **What we could use help with**

Additional educational materials including technical and business info that can help make a convincing case for solar technologies. Also sharing of experiences by peer group (other MSR partners) on what worked for them and why, as well as what did not work for them and the reasons.

# SolarBound

## Partnership Lead Organization

*The Million Solar Roofs Initiative for Northern Colorado*

Contact Person: Alison Mason

Contact Title: Director

Contact Organization: Trees, Water, and People

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Phone Number: (970) 484-3678

Fax Number: (970) 224-1726

Email Address: [alison@treeswaterpeople.org](mailto:alison@treeswaterpeople.org)

Website Address: [www.solarbound.org](http://www.solarbound.org)

## Leveraged Resources

\$68,300 in-kind contribution from partners in two years of operation

## New and Noteworthy Accomplishments

Development of two workshops for building professionals: Zero Energy Homes (a two day class teaching the fundamentals of energy efficient building and on-site clean energy generation) and Building Solar (a two day class for commercial building professionals teaching the fundamentals of solar engineering and design).

## Other Partners

1. City of Fort Collins Utilities and Department of Natural Resources
2. Platte River Power Authority
3. Sierra Club Poudre Canyon Group
4. Western Area Power Administration

## Activities Underway

Education of local government officials to encourage adoption of solar implementation policy; Fundraising for solar thermal system on high school; planning for interconnection seminar for utility officials.

## Year of Formation

2003

## Upcoming Events

- Solar Education Day at Discovery Science Center, August 12
- Sustainable Living Fair, September 17, 18.

## Million Solar Roofs Installation Goal

500

## What we could use help with

Marketing – a complete package with a standard format for flyers, emails, posters, etc; a checklist to help organize marketing tasks and strategies; a central MSR calendar for workshops, highly visible to the public or segmented by interest group – educators, building professionals, developers, general public, homeowners

## Mission Statement

*SolarBound is dedicated to supporting solar energy efforts in Colorado with a special emphasis on initiatives designed to increase solar energy use in communities along the Northern Front Range.*

## Cumulative Installations

Five

## Solar Schools

One



# Montana MSR Partnership

## Partnership Lead Organization

Contact Person: Cathy Svejksky,  
Contact Title: Program Specialist  
Contact Organization: National Center for  
Appropriate Technology (NCAT)  
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Fax Number: (406) 494-2905  
Email Address: [cathys@ncat.org](mailto:cathys@ncat.org)  
Website Address: [www.ncat.org](http://www.ncat.org)

## Other Partners

- NorthWestern Energy
- Montana Renewable Energy Association
- Montana Department of Environmental
- QualityBonneville Power Administration
- Glacier Electric Cooperative

## Year of Formation

2000

## Million Solar Roofs Installation Goal

1,000

## Cumulative Installations

597

## Solar Schools

27

## Leveraged Resources

NCAT received funding in April for continuation of the Solar Fire Station project that will result in the installation of six additional uninterruptible power supply two-kilowatt systems in the NorthWestern Energy electric service territory.

## New and Noteworthy Accomplishments

NCAT projects have increased the number of solar energy installations in the state, expanding community demonstrations to include schools, libraries, law-enforcement buildings, and city halls. With new funding for MontanaGreenPower.org received in May from NorthWestern Energy, we have been able to resume work on the website to keep Montanans informed about renewable energy news and related topics.

The Montana Partnership played a major role in promoting legislation that would increase the role of solar energy in Montana. Following is a summary of the successful legislative initiatives from the 2005 session:

### **SB 415 — Montana Renewable Power Production and Rural Economic Development Act**

would create a Renewable Energy Standard to encourage the development of Montana's wind resource, diversify our energy supply, and promote investment in rural Montana. An amendment was added in the House Energy Committee which greatly limits the bill's effectiveness. In contrast, the Governor's Amendment provides rock-solid consumer protection without compromising the basic purposes of the act.

Status: Passed, transmitted to Governor

### **SB 50 — Revise alternative energy system loan laws.**

Strengthens the alternative energy loan program, and expands it to include conservation.

Status: Passed, signed by Governor

### **SB 83 — Clarify renewable energy projects eligible for renewable resource grants-loans.**

Status: Passed, signed by Governor

### **SB 115 — Equitable taxation of wind energy facilities.**

The goal of this bill is to reduce property taxes for wind projects.

Status: Passed, transmitted to Governor

### **Activities Underway**

NCAT has developed and distributed builder/architect and homebuyer brochures that outline the benefits of solar energy and energy efficiency in new home construction. The brochures were distributed at several home shows and homebuilder meetings in Montana. NACT also developed articles and press releases on the benefits of solar technology in Montana for organization newsletters and major newspapers.

<b><u>Solar Builder Outreach Locations</u></b>	<b><u>Dates</u></b>	<b><u>Attendees</u></b>
Missoula Home Show	2/4-6/2005	NA
Great Falls MBIA Monthly Mtg	3/10/2005	35
Kalispell MBIA Monthly Mtg	3/15/2005	60
Great Falls Home Show	4/1-3/2005	NA
Missoula MBIA Monthly Mtg	4/20/2005	80
Missoula MBIA Seminar (Energy)	4/20/2005	10
Helena MBIA	5/19/2005	32
Kalispell Code/ESHNW Meeting	5/25/2005	32
Montana Builders Convention (scheduled)	6/16-18/2005	NA

\*MBIA=Montana Building Industry Association

NCAT is currently registering builders for the solar electric incentive from NorthWestern Energy

### **Upcoming Events**

Energy Star/Solar Energy Presentation and display at the Montana Builders Convention 6/16-18/2005 in Hamilton, Montana.

# Farm Focus Nebraska

## Partnership Lead Organization

Contact Person: Tom Potter  
Contact Title: Principal  
Contact Organization: The New Center  
Mailing Address: 515 S. Magnolia Lane, Denver  
80224  
Phone Number: 303.503.2230  
Fax Number: 303.832.5622  
Email Address: [tom.potter@rmfu.org](mailto:tom.potter@rmfu.org)

## Other Partners

Advanced Energy Systems  
Nebraska Farmers Union

## Year of Formation

2005

## Million Solar Roofs Installation Goal

500 solar roofs

## Cumulative Installations

- zero in 2004
- zero cumulative

We will be collecting information regularly from our field contacts and project champions in the Farm Focus Nebraska territory

## Solar Schools

Zero schools and school districts to this point

## Leveraged Resources

Not applicable

## New and Noteworthy Accomplishments

Our key strategy for increasing solar installations is to raise the consciousness of the benefits of solar; then to provide tools and other resources to help get hardware installed

## Activities Underway

To be initiated upon receipt of funding in October

## Upcoming Events

None to report

## What we could use help with

Largest barrier is the relative lack of information on the applicability of non-PV solar to the ag sector. A smaller but still significant issue in our service territory is the difficulty in efficiently and effectively communicating with a farm population that is spread very thin.

# Neighborhood Solar

## Partnership Lead Organization

City of Albuquerque

Contact Person: Richard Harding

Contact Title: Manager

Contact Organization: Facilities, Energy, and Security Division

Mailing Address: 1801 Fourth St. NW, Building B, Albuquerque NM 87102

Phone Number: 505-768-5362

Fax Number: 505-768-5317

Email Address: [rharding@cabq.gov](mailto:rharding@cabq.gov)

## Other Partners

<p align="center"><i>Neighborhood Solar Team</i> 2004-2005</p>
--

<b>Jean Arya</b>	COA Consultant to the Energy Conservation Council (ECC)
<b>Gene Bustamante</b>	Energy Management, City of Albuquerque (COA)
<b>Rigo Chavez</b>	Community Relations, ABQ Public Schools
<b>Robert Broderick</b>	Engineer, Public Service Co. of New Mexico (PNM)
<b>Wayne Evelo</b>	Chairman COA Energy Conservation Council, NM Solar Energy Assoc. Board of Dir., Rebuild NM Board of Dir., DOE ABQ
<b>Dr. William Gross (Bill)</b>	Immed. Past Chairman, COA ECC, Professor Emeritus College of Engineering, University of New Mexico
<b>Charles Hanley</b>	Director, Solar Energy, Sandia National Laboratories
<b>Richard Harding</b>	Dep. Director of Facilities Management, Energy & Security of Dept. of Municipal Development, and Contract Manager for this COA-MSR Partnership
<b>Jack McGowan</b>	CEO, Energy Controls, Inc.
<b>Don Maez</b>	ECC past chairman, Public Service Co. of NM
<b>Jim Palmer</b>	NRG Engineering, Consulting Energy Engineer to this COA-MSR Partnership
<b>Ron Rioux</b>	District Energy Conservation Coordinator, ABQ Public Schools
<b>David Robertson</b>	Facilities Engineer, Facilities Planning and Construction, ABQ Public Schools

<b>Chuck Salazar</b>	Director, Parks and Recreation, COA
<b>Julie Stephens</b>	Coordinator, Rebuild New Mexico
<b>Neal Skiver</b>	Financier, V.P. National City Energy Capital, Santa Fe
<b>Pat Scharff</b>	Engineer and renewables program director for PNM
<b>Lynne Behnfield Thomas</b>	CEO, GLOBAL Energy, Project Manager, COA-MSR Partnership
<b>Dana Allen</b>	Rebuild New Mexico Staff Assistant
<b>Libby Chaplin</b>	Facilitator, Environment & Communication Specialist, Environmental Health Associates Inc., Santa Fe

## **Year of Formation**

2003

## **Million Solar Roofs Installation Goal**

Meet or exceed the 500 solar roofs commitment with appropriate performance criteria for project evaluation.

## **Mission Statement**

A Ten Year Plan has been developed, with six objectives. A summary of that 10-page document is attached below.

## **Cumulative Installations**

The Partnership proposal for roof equivalence is noted below. When the work proposed in 2003-04, the first year of the Partnership, is completed as required in the Partnership's first performance contract, the 500-roofs goal will have been met or exceeded. That contract is expected to be awarded early September 2005.

***Solar Roof Equivalence and Rooftops Installed to Date*** — The average solar installation on an Albuquerque-area home or small business is modestly estimated at 3.346 square meters (36 square feet). This is based on a conservative judgment of two panels per roof, averaging available panel size of conventional solar hot water and pool heating panels at 1.673 square meters per panel.

The goal of the first year MSR Partnership, *Solar for Schools*, was to install solar hot water and some photovoltaic (PV) on five swim complexes shared by Albuquerque Public Schools and the City of Albuquerque. A final proposal is being reviewed now. The initial recommendation of the ESCO is 408 panels for HW; each panel proposed is 41.6 square feet, or 16,972.8 square feet of collectors. This is equivalent to 1,577.4 square meters or 471.43 average Albuquerque-area residential roof top installations. During negotiation, the COA evaluation committee hopes to increase the HW panel square footage at least five percent.

The PV proposed is modest in order to keep the overall performance contract within the state-mandated maximum ten-year payback period. The output equivalence, added to the increase in hot water panels, is likely to bring the Partnership to about 500 rooftops.

The figures used for average utility use in the Albuquerque area were supplied by Public Service Company of New Mexico, an NS Team member. Output per square meter for an average solar panel is taken from the International Energy Agency (IEA), Solar Heating and Cooling Programme, selected by DOE Albuquerque, an NS Team member.

For measuring the impact of solar on homes and businesses, *NS* has selected therms as the common denominator for kWh and Btu energy use of natural gas, CNG, and electricity

### **Solar Schools**

The State Energy Office and Rebuild New Mexico have active solar school programs, including installations and education. Our Neighborhood Solar Partnership is installing solar thermal and solar photovoltaic on the five school-community swim facilities in the City of Albuquerque this year and 1.5 million square feet of City buildings in year two.

### **Leveraged Resources**

Not applicable in years one and two of the Partnership.

### **Outreach**

Two workshops have been held, targeting building owners and managers. Homeowners also attended. Total enrollment is approximately 60.

Number of news articles, press releases - 4 re workshops

The Partnership is focusing the first two years on all possible and appropriate solar installations on City facilities. In year three, the Ten Year Plan calls for a shift to public education and outreach, to expand solar installations to the community at large, residential and business.

### **Activities Underway**

Year two of the Partnership is surveying all appropriate City of Albuquerque buildings and selecting 1.5 million square feet for solar retrofits, including hot water, hot air and hot water space heating (baseboard or other), photovoltaic, and passive solar. A performance contract will be let to complete all work.

### **Upcoming Events**

The Team meets quarterly or as needed. Workshops will be held in Fall 2005, telling the success story of performance contracting and solar hardware installations.

### **What We Could Use Help With**

Largest barrier: continued funding.

As reported in our annual report to MSR, our Team can see huge benefit from an MSR- maintained “chat room” on line. Some of this Team’s questions, needs, and successes could be shared there easily and, we believe, effectively.

### **Progress Toward Our MSR Goal**

We are ahead of our goal and pushing ahead and expanding solar in the Albuquerque area, as led by our Ten Year Plan. We are now in year two.

# Solar San Antonio, Inc.

## Partnership Lead Organization

Contact Person: William Sinkin  
Contact Title: Chairman  
Contact Person: Anita Ledbetter  
Contact Title: Executive Director  
Contact Organization: Solar San Antonio, Inc.  
Mailing Address: 118 Broadway, Suite 232  
San Antonio, TX 78205  
Phone Number: 210-354-0236  
Fax Number: 210-354-0200  
Email Address: [aledbetter@solarsanantonio.org](mailto:aledbetter@solarsanantonio.org)  
Website Address: [www.solarsanantonio.org](http://www.solarsanantonio.org)

## Year of Formation

1999

## Million Solar Roofs Installation Goal

In partnership with the community, Solar San Antonio (SSA) works to educate the public and private sectors about advantages of renewable energy technologies to decrease energy costs, promote the preservation of our environment and improve the quality of life in San Antonio and Bexar County.

## Outreach

- Number of workshops held in 2004 – 2 –High School Renewable Energy Workshops – over 30 local teachers attended, June 2004. Solar Hot Water Heating Workshop and Installation – over 50 local individuals came out and learned how to install a solar water heater, followed by an actual installation on a housing unit on Brooks City Base, March 2004.
- Average number of website visitors – uncertain
- Number of brochures, guides, directories, *etc.* printed and distributed - 2
- Number of news articles, press releases - 10
- Number of public events – 1 Solar Fest
  - Estimated attendance: 1000

## New and Noteworthy Accomplishments

Solar San Antonio has just moved into a unique office space – a first in our area. Our new space is a showcase office of sustainable building materials, and energy efficiency. We have moved into the “Sustainable Energy Center” with our Sister organization, the Metropolitan Partnership for Energy, and Stephen Colley Architecture.

## Upcoming Events

- Texas Energy Smart Schools Conference, February 2006.
- Solar Fest 2006, June 2006.
- High School Renewable Energy Workshop, March 2006.
- Renewable Energy for the Classroom Workshop – November 2005.

# Texas MSR Partnership

## Partnership Lead Organization

- **Contact Person**  
Jane Pulaski  
Russel Smith
- **Contact Title**  
Co-coordinators
- **Contact Organization**  
Austin Energy (Leslie Libby)

## Other Partners

- West Texas A&M University/Alternative Energy Institute
- Austin Energy
- El Paso Solar Energy Association
- Electric Power Engineers
- Environmental Defense Fund
- Hutton Communications
- Meridian Energy Systems, Inc
- Morningstar Enterprises
- Planergy, Inc.
- Public Citizen
- Solar System Installations
- Southwest PV Systems, Inc.
- Texas Solar Energy Society
- Texas Solar Power Company
- Texas Southern University
- The Power Store; Habitat Suites

## Year of Formation

1999

## Million Solar Roofs Installation Goal

1,500

## Solar Schools

A total of 42 schools throughout Texas account for kW PV installed. A good listing of the Texas schools can be found on the IREC Schools Going Solar website

(<http://www.irecusa.org/sgs.php?state=Texas>)

## New and Noteworthy Accomplishments

In 2004, Texas hosted two NABCEP exams (April/October), and again in March 2005.

Currently, there are seven NABCEP-certified practitioners in Texas, six of whom live in Austin. Nine people will sit the September 2005 exam.

## Activities Underway

- Continuing to work with Solar Austin on Austin Energy's Solar Rebate Program. Rebate program became official in May, 2004. Austin Energy will require installers to have NABCEP certification by 2006.
- Recent passage of additional 2,880 MW to Texas RPS, with 500 MW set aside; will be important for MSR, particularly if a portion of that 500MW is allocated to solar. Regulatory process underway to define the parameters of the 500 MW set aside.

## Upcoming Events

- Sept. 23-25: Texas Renewable Roundup and Sustainable Living Fair, Fredericksburg, Texas.
- Sept. 24: NABCEP exam

## What we could use help with

Continued efforts with interconnection, net metering and energy security issues for Texas.



# Salt Lake City MSR Partnership

## Partnership Lead Organization

Contact Person: Lisa Romney  
Contact Title: Environmental Advisor to the Mayor  
Contact Organization: Salt Lake City Corporation  
Office of the Mayor  
451 S. State Street, Room 306  
S. State, Room 306  
Salt Lake City, UT 84111  
Phone: (801) 535-7939  
Fax: (801) 535-6331  
[lisa.romney@ci.slc.ut.us](mailto:lisa.romney@ci.slc.ut.us)  
[www.slcgov.com](http://www.slcgov.com)

## Other Partners

Utah Clean Energy and Dr. Rich Collins

## Year of Formation

2002

## Million Solar Roofs Installation Goal

500 kW

**Mission Statement:** *To reduce the financial barriers associated with the installation of solar systems by creating a regulatory environment in Utah that recognizes and rewards the utility and public benefits associated with solar energy.*

## Cumulative Installations

14 kW net metered installations

## Solar Schools

None

## Leveraged Resources

Leverage resources will be significant with the completion of the efforts outlined below. (\$100,000 for the SLC PV project and \$1.25 million if the buy-down program is approved in March 2006 rate case.)

## New and Noteworthy Accomplishments

PacifiCorp/Utah Power has committed \$100,000 (funded by their green power program) for a PV installation in Salt Lake City. Their commitment requires a minimum 30% match. They have also committed to partnering with the SLC MSRP in to put forth a PV buy-down program in their upcoming rate case.

## Activities Underway

Efforts to secure matching funding for the Salt Lake City PV project. Currently the partnership is working with Salt Lake City and Salt Lake County to include a large 20 kW PV system on the planned expansion of the Salt Palace Convention Center.

## Upcoming Events

Education and outreach at farmer's markets and other community events and formation of Utah solar working group.

# Mid-Atlantic Region

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## Regional Office Report

### **Delaware**

Delaware MSR Coalition

### **District of Columbia**

District of Columbia Solar Initiative

### **Maryland**

State of Maryland

### **Pennsylvania**

Commission on Economic Opportunity / Pennsylvania Weatherization Providers Task Force  
Philadelphia MSR Partnership

### **Virginia**

Virginia MSR Partnership

### **West Virginia**

West Virginia Solar Energy Initiative



# **The Solar Year in Review For the Mid-Atlantic Region**

## ***Prepared by the Mid-Atlantic Regional Office***

The Mid-Atlantic Region teemed with renewable energy activities during 2004. Every partnership made progress in opening the market place for solar energy. Of the 6 states and the District of Columbia - that make up the Mid-Atlantic Region, 6 offer some form of buy-down program, 6 offer net metering and interconnection standards, 5 have launched portfolio standards that include solar and 3 offer sales tax exemptions. Depending on the local barriers, each partnership made progress in eliminating barriers to the use of solar energy in their respective area. .

Leading the charge with 3.6 MW installed solar since 1999, New Jersey initiated improvements to their Renewable Portfolio Standard expanding capacity to 20% by 2020. Envious by others, New Jersey's clean energy policy continues to reduce barriers and improve the market for solar energy with a goal of 90 MW by 2008. With installation success in nearly every market segment, this fall New Jersey plans to unveil large photovoltaic systems on water companies, waste treatment plants, and medical service units. Leaving no segment out, New Jersey plans to launch The Voluntary Green Power Choice Program to expand solar electric use in schools. This voluntary program will give electricity customers the option to "check off" a contribution to support solar energy on schools.

The Pennsylvania partnerships combined efforts to successfully see the Alternative Energy Portfolio Standard (AEPS) to fruition. An 18% commitment by 2020, the standard has a 0.5% solar set-aside. More importantly, the PA AEPS is one of the leading standards including solar thermal as a qualifying technology (Solar Water Heating, Solar Space

Heat, Solar Thermal Electric, Solar Thermal Process Heat).

To accompany their Green Energy Program, the Delaware General Assembly passed the Renewable Energy Portfolio Standard, providing 300% credit for installing photovoltaic systems. To overcome the sluggish system sales and boost program participation, the Delaware Energy Office launched a radio advertisement campaign to alert Delawareans of the availability of grants for solar energy. A leader in the Mid-Atlantic region, the Delaware Green Energy Program offers 50% grants for solar water heating as well as photovoltaics.

The Maryland partnership has made steady progress in solar installations and renewable energy policy. Over the last year, the Maryland Energy Administration launched the Maryland Solar Energy Grant Program and offered more than \$104,000 in grants facilitating nearly 45 installations of solar energy. With grants of 20% of the installed cost capped at \$2000 for solar water heating and \$3000 for photovoltaic, Maryland's program is not the most generous. Yet, its first year numbers significantly surpass the results of many other first year programs that offer higher incentives. The MEA's simplified grant application and existing solar installer base has been noted as a possible reason for the early success.

The District of Columbia has made significant progress on all fronts. Kicking off their 11% by 2022 renewable portfolio standard, the DC RPS requires 0.386% solar by 2022. The RPS effort joins DC's successful Renewable Energy Demonstration Project (REDP) which recently completed its first round of solar grants to District residents.

The West Virginia partnership is working to develop a strong foundation of partners to work on barrier reduction. West Virginia is working to educate the community on the benefits of solar energy while recruiting contractors to become skilled installers. Recognizing that West Virginia produces about 15% of the total coal in the United States and generates 99% of its electricity from coal at an average retail price of 5.11¢ per kWh<sup>3</sup>, removing barriers to the use of solar energy is no small task.

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[http://www.eia.doe.gov/cneaf/electricity/st\\_profiles/e\\_profiles\\_sum.html](http://www.eia.doe.gov/cneaf/electricity/st_profiles/e_profiles_sum.html)

# Delaware MSR Coalition

## Partnership Lead Organization

Delaware Million Solar Roofs Coalition  
Contact Person: Brian Gallagher  
Contact Title: Delaware MSR Coordinator  
Mailing Address: 2100 Lee Highway, #221,  
Arlington, VA 22201  
Fax Number: 703-524-1249  
Phone Number: 703-524-1249  
Email Address: bgallagher@e3energy.com  
Website: <http://delawaresolar.millionsolarroofs.org/>

## Other Partners

### *New Partners*

- GE Energy, Solar Technologies

### *Existing Partners*

- Analytical Applications of Bear, DE
- E3 Energy Services, L.L.C.
- Delmarva Poultry Industry
- Home Builders Association of Delaware
- Advanced Building and Solar
- AJL Resources, Inc.
- Applied Energy Group
- CMI Electric
- Delmarva Power
- Energy Alternatives
- Energy Services Group
- Green Plains Energy
- McConnell Development Inc.
- State of Delaware's Energy Office
- The Commonwealth Group
- University of Delaware, Center for Energy and Environmental Policy
- Wanex Electrical Services

## Year of Formation

2002

## Million Solar Roofs Installation Goal

The Delaware Million Solar Roofs Coalition (DE MSR) is an unincorporated association established in 2002 by a group of organizations, businesses, and individuals working together for the advancement

of the use of solar energy, other forms of renewable energy, and energy efficiency.

The purpose of the DE MSR is to respond to the United States Department of Energy's request for state partners in the Million Solar Roofs Initiative. The National MSR Initiative challenges these partnerships to install one million solar energy systems by 2010.

The DE MSR supports the National Initiative and incorporates into this mission statement the US DOE's goal of:

- Contributing to the Million Solar Roofs by installing a minimum of 500 solar energy systems within Delaware.
- Identifying and eliminating market barriers to the installation to solar energy systems.
- Developing and strengthening local demand for solar energy products and applications.

Further, the goals of the DE MSR align with the State of Delaware's "Livable Delaware Policy" regarding energy efficiency and clean energy. The Livable Delaware goals incorporated into our mission are:

- Promoting energy efficiency and clean energy technologies by encouraging the use of solar energy on Energy Star buildings.
- Promoting the Green Energy Grant Program, which offers 50% buy-down for solar energy installations.

The overall goals of the DE MSR are to:

- Educate consumers on the applications and benefits of solar energy, other forms of renewable energy, and energy efficiency.
- Overcome local barriers to the use of solar energy.
- Promote solar energy to all utility service providers in Delaware.

## Cumulative Installations

2004 Installations: 61.81 kW Commercial PV,  
17.22 kW Residential PV.

2004 Cumulative PV Installations:

14 Cumulative Installations	
Commercial	544.51 kW
Residential	33.72 kW
<u>School</u>	<u>1.3 kW</u>
Total	579.53 kW

226 Cumulative Equivalent Installations

## Solar Schools

Sussex Central Middle School

The Christiana School District recently purchased the former headquarters of Astropower, that has 328 kW of PV installed on the building, to convert it into a middle school. The DE MSR plans on working with the school district to incorporate a solar curriculum for the middle school students.

## Outreach

- Number of workshops held – 5. Audiences included: Solar energy installers, homeowners, and builders.
  - Average number of participants: 25
- Average number of website visitors: n/a
- Number of brochures, guides, directories, *etc.* printed and distributed: 800
- Number of news articles, press releases: 6
- Number of public events: 16
  - Estimated attendance: 12,000

## Leveraged Resources

The DE MSR, through its partnership with the Delaware Energy Office and the Energy Services Group, Inc, Delaware's Energy Star leader, has leveraged nearly \$7,500 in dollars and in-kind service in 2004. Since its inception, the DE MSR has helped, directly and indirectly, Delaware residents and businesses to access \$1,192,690 of state-administered incentives for solar energy.

## New and Noteworthy Accomplishments

Once again, the DE MSR conducted successful outreach to Delaware residents at the Spring and Fall Delaware Home Shows. For these shows, the DE MSR, Energy Star, and the Delaware Energy

Office teamed up as the title sponsors. With the slogan, "The Pathway to a Zero Energy Home: Energy Star & Million Solar Roofs," thousands of Delawareans were made more aware of solar energy and the DE MSR talked to hundreds of Delawareans about solar energy.

A new outreach activity this year was the DE MSR's sponsorship of the two seminars that focused on green home building practices, including for low-income residences. With the growing popularity of buildings built to LEED green building standards, our outreach activities at these seminars allowed us to target our outreach to influential developers, architects, and contractors.

On June 30, 2005, the Delaware General Assembly passed a renewable energy portfolio standard (RPS) that provides PV-produced energy a 300% credit toward meeting the RPS. Several DE MSR members worked to have the triple credit for PV included in the legislation. Delaware's Governor is expected to sign the bill.

## Activities Underway

The DE MSR is preparing a report on the use of solar thermal in the Delmarva poultry industry. Preliminary results indicate a favorable pay-back period for the use of solar thermal in poultry processing plants

## Upcoming Events

Partnership meeting is planned for September 2005 and March 2006. DE MSR will cosponsor the Fall Delaware Home Show in September 2005 and the Spring Home Show in April 2006. A report on the use of solar thermal in the Delmarva poultry will be issued in September 2005. Individual workshops on the solar thermal report will be conducted with each poultry company in September 2005

## What we could use help with

The unavailability of solar incentives in the territories of the municipal electric companies and the Delaware Electric Cooperative continues to retard the installation of solar in these parts of Delaware. The recently passed RPS could alleviate this barrier to solar installations. Continued national funding support, a portable solar model house for home shows and community events, and reprints of the Clean Energy Options booklet.

**Progress toward our MSR Goal**

The DE MSR is almost half way to our goal and we expect to reach our goal well before 2010. While the first two years of DE MSR saw good progress toward our MSR goal, the pace of installations slowed down this past year. This slowdown will be a topic of discussion at the next partnership meeting. In particular, we will look at why the New Jersey solar market is so robust in comparison to Delaware's even though the two states are similar solar incentives.



# District of Columbia Solar Initiative

## Partnership Lead Organization

Contact Person: Tomaysa Sterling  
Contact Title: Chief, Sustainable Solutions Division  
Contact Organization: DC Energy Office  
Mailing Address: 2000 14<sup>th</sup> Street, NW; Suite 300E;  
Washington, DC 20009  
Phone Number: 202.671.1403  
Fax Number: 202.673.6725  
Email Address: [tomaysa.sterling@dc.gov](mailto:tomaysa.sterling@dc.gov)

## Other Partners

MD-VA-DC-Solar Energy

## Year of Formation

2003

## Cumulative Installations

We have yet to install any solar projects. We are however in the process of beginning 12 installations for 2005 and we are extremely excited about those projects

## Leveraged Resources

Currently we are using funds from the Reliable Energy Trust Fund to co fund renewable projects in Washington, DC, through the Renewable Energy Demonstration Project (REDP). This program offers up to a 50% match for applicants who implement renewable energy projects, which includes but is not limited to solar projects. Eligible applicants include hospitals, institutions, residents, business and non-profit organizations, etc.

## Outreach

We have distributed about 200 brochures and information about the MSR program to residents, hospitals, hotels, and other businesses with Washington, DC. This year we sponsored along

with several other DC Government Agencies, GreenDC Week. This week consisted of five themed days, Holistic Energy, Air, Water, and Environmental and Community Day. We used this week as avenue to education the participants about our programs, which include our Million Solar Roofs Partnership. At the commencement of the week lone events there were about 1200 participants including students and teachers from Washington, DC schools.

## New and Noteworthy Accomplishments

Our key strategy for building on our solar installation number is continue outreach and build on the programs that we have in place

## Activities Underway

At the present time we are bringing our first round of the REDP to a close and gearing up for the second round to begin in late November early December of this year

## What we could use help with

The smallest nagging issue for us is money. We are pulling together all the resources that we have and it just isn't enough.

## Progress Toward Our MSR Goal

We are not as far with our goal as we had hoped to be, due to a late start and some hiccups that we have had along the way. We are excited about the projects that we have underway and plan to increase our numbers by increasing the amount of projects that are warded funds through our REDP as well as develop new programs.

# State of Maryland

## **Partnership Lead Organization:**

Contact Person: Tim LaRonde, Program Manager

Contact Organization: Maryland Energy Administration (MEA)

Mailing Address:

1623 Forest Drive, Suite 300

Annapolis, Maryland 21403

Phone Number: 410-260-7539

Fax Number: 410-974-2250

Email Address: [tlaronde@energy.state.md.us](mailto:tlaronde@energy.state.md.us)

Website Address: [www.energy.maryland.gov](http://www.energy.maryland.gov)

## **Other Partners**

- Alice Ferguson Foundation – Hard Bargain Farm Environmental Center
- Antares Group
- Aurora Energy
- BP America
- BP Solar
- Capital Sun Group
- Chesapeake Wind and Solar
- Clean Energy Partnership
- Highland Beach Community
- LBA Renewable Energy Systems
- Maryland, DC, Virginia Solar Energy Industries Association (MDV-SEIA)
- Maryland Department of Environment
- Maryland Green Building Network
- Maryland Science Center
- Montgomery County Department of Environmental Protection
- National Aquarium at Baltimore
- Potomac Region Solar Energy Association (PRSEA)
- Thermo Technologies
- University of Maryland Solar Decathlon Team

## **Year of Formation**

1997

## **Million Solar Roofs Installation Goal**

Maximize the implementation of renewable solar energy projects through a variety of venues including, in some cases, partial funding of projects.

### Cumulative Installations:

Recent Installations: 4 Residential PV = 10.38 kW, 3 Residential SWH = 8 kW, and 2 solar schools = 13 kW

35 of the new projects listed below have received grant offers and are under development:

Category	New Projects 2005		TOTALS	
	Total	kW	Total	kW
Residential PV	22	50.14	80	143.64
Residential Thermal	16	50	28	75.4
Schools PV	2	13	10	23.4
Farms PV	0	0	6	8.4
Commercial PV	3	4.8	9	97.8
Commercial Thermal	3	16	6	167.2
Federal PV	0	0	3	153.9
TOTAL	46	133.94	142	669.54

### Solar Schools

A total of 10 Solar Schools, located in 6 school districts, have been completed.

### Leveraged Resources

Solar schools projects were provided grants from DOE, MEA, BP America, and the Solar Schools Foundation.

### New and Noteworthy Accomplishments

The newly created Solar Energy Grant Program successfully committed all of the program funds in the first 5 months of the program which began in January 2005. Governor Ehrlich's Fiscal Year 2006 budget, which requested \$103,500 for the program, was approved by the Maryland General Assembly but reduced to \$75,000. MEA has requested a budget amendment to bring funding back to the previous years level.

The net metering law was expanded again and now includes biomass as well as wind and PV generation. The maximum size was raised to 200 kW with a provision to petition the Public Service Commission for systems up to 500 kW.

### Activities Underway

The Alice Ferguson Foundation completed a 12 kW PV array at their Hard Bargain Farm Environmental Education Center. Thanks to Jim Dunlop from the Florida Solar Energy Center for developing the Technical Specifications and setting up the data acquisition system. The project was installed by Aurora Energy from Annapolis, Maryland. To see the system data, visit the following FSEC link:  
[www.logger.fsec.ucf.edu/pvdata/new/HBF](http://www.logger.fsec.ucf.edu/pvdata/new/HBF).

The Takoma Park Middle School has finally installed a 1 kW PV awning. Thank you Joe Zillo!

Glen Kizer, from the Foundation for Environmental Education, has been working with the Partnership with the intent of identifying additional solar schools projects in Maryland.

Members of the local SEIA chapter (MDV-SEIA) have continued to actively promote solar development and have provided valuable technical support to applicants in Solar Energy Grants Program.

BP Solar has recently expanded its manufacturing plant in Frederick and has donated over \$100,000 worth of modules to the local Frederick County Public School's new Earth and Space Science Lab.

A Net Zero Energy Home project is being developed with the assistance of the National Association of Home Builders Research Center (NAHB RC). The center has identified a builder, site and house design to modify.

The Maryland Science Center plans to add PV to their facility at the Inner Harbor in Baltimore. MEA, BP and BP Solar have offered their support for the project. Thanks go out to NREL's John Thornton for the site visit.

Additional green building projects are planned throughout Maryland including; Tower Oaks office building in Kensington, the City of Bowie, The Community of Highland Beach and The Black Olive Restaurant in Baltimore.

### **Upcoming Events**

The University of Maryland will be competing in the 2005 Solar Decathlon and has received funding from DOE, MEA, BP Solar and others.

The annual MSR meeting will be held in Washington, DC in October.

### **What we could use help with**

Additional funds for more solar projects, especially through DOE's SEP grant solicitation, would be very valuable.

The Maryland Partnership appreciates the technical support from the National Laboratories and the Department of Energy's Mid-Atlantic Regional Office.

# Commission on Economic Opportunity / Pennsylvania Weatherization Providers Task Force

## Partnership Lead Organization

Contact Person: Mr. Gene Brady  
Contact Title: Executive Director  
Contact Organization: Commission on Economic Opportunity/PA Weatherization Providers Task Force  
Mailing Address: Amber Lane PO Box 1127  
Wilkes-Barre, PA 18703-1127  
Phone Number: 570 826-0510  
Fax Number: 570 829-1665  
Email Address: [hebegebe@sunlink.net](mailto:hebegebe@sunlink.net)  
Website Address: [www.pasolar.org](http://www.pasolar.org)

## Other Partners

- The forty-two member agencies of the PWPTF
- PPL
- Allegheny Power
- GPU
- The Pennsylvania Department of Community and Economic Development
- The Community Action Association of Pennsylvania
- The Pennsylvania Department of Environmental Protection
- Projects with a Purpose LLC
- Mesa Environmental Sciences, Inc.\*

## Year of Formation

1999

## Million Solar Roofs Installation Goal

1,000 solar roof installations statewide by 2010

## Cumulative Installations

October 1, 2004 – June 30, 2005  
5 Solar hot water  
1 Photovoltaic

170 - This number reflects only installations made under the statewide electric pilot project. Other

installations which we have given technical assistance outside of our network are under review at this time and have not been counted.

These installations are broken down as follows:  
Seventy-seven (77) photovoltaic installations 1 kWh each, one 7.2kw for a total of seventy-seven; ninety-two (92) domestic solar hot water.

## Solar Schools

We have done classroom presentations. The PWPTF has not been able to track this information. The PA Public Utility Commission has been contacted regarding this question, however, as of June 30, 2005; we have not had a response.

## Leveraged Resources

Commission on Economic Opportunity in-house contribution. We do not have access to any utility incentives, nor are there any state rebates or incentives in effect as of June 30, 2005.

## Outreach

- Average number of website visitors – Unknown. We do not have counters installed on our website
- Number of brochures printed and distributed - 400
- Number of public events – 5\* (three of the five events were multi-day events)
  - Estimated attendance – Thousands

## New and Noteworthy Accomplishments

The PA MSR Partnership participated in various public appearances in Virginia, Maryland and Pennsylvania.

The key strategy for increasing solar installations across Pennsylvania beyond the City of Philadelphia involves new legislation commonly known as Act 213, the Alternative Energy Portfolio Standard. The Act contains an incentive for solar installations. The PA MSR Partnership will utilize this information to inform the citizenry of the new options available to them.

### **Activities Underway**

Marketing Residential Homeowners

### **Upcoming Events**

The PA MSR is scheduled to appear at a first-ever Mid-Atlantic Energy Fair in September, and a sixth annual energy fair in Virginia in October.

DOE Weatherization Conference in September in New Orleans, LA

### **What we could use help with**

Largest barrier is getting workable incentives for solar applications. A smaller issue is the lack of understanding of the value of solar. Also, there is too much emphasis placed on PV and failing to emphasize the positive aspects of solar hot water.

### **Progress toward Our MSR Goal**

We are slightly behind target due to incentives (subsidies) that failed to develop. Funding shortfalls and the utilities that chose to delay the start of the pilot program resulted in a program implementation delay. As a result, we are not increasing our target at this time.

# Philadelphia MSR Partnership

## Partnership Lead Organization

Contact Person: Dennis Winters, Coordinator  
Contact Organization: Energy Coordinating Agency, Inc  
Mailing Address: 1924 Arch Street, Philadelphia, PA 19103-1404  
Phone Number: (215) 320-4612  
Fax Number: (215) 988-0919  
Email Address: [phillymsr@email.com](mailto:phillymsr@email.com)  
Website Address: [www.phillysolar.org](http://www.phillysolar.org)

## Other Partners

AIA Committee on the Environment  
AJL Resources\*  
Bradley Builders\*  
Celentano Energy Services/RA Consulting  
Citizens for Pennsylvania's Future (PennFuture)  
Clean Air Council  
Community Energy, Inc.  
Energy Cooperative Association of PA  
Finley Shapiro Consulting, Inc.  
GE Solar\*  
GPU Solar  
Green Mountain Energy Co.  
Hap Haven Solar\*  
Mid-Atlantic Solar Energy Industries Association  
PUC Office of Consumer Advocate  
PA Department of Environmental Protection  
PECO Energy  
PennEnvironment\*  
Philadelphia Municipal Energy Office  
Philadelphia Solar Energy Association  
Princeton Energy Systems  
Solar Strategies Development Corp.  
SunPower Builders  
TRF/Sustainable Development Fund

\* Denotes a new Partner in 2005

## Year of Formation

1999

## Million Solar Roofs Installation Goal

The Philadelphia Million Solar Roofs Community Partnership is a collaborative of local organizations,

businesses, and government agencies committed to helping the five county region of Southeastern

Pennsylvania contributes over 500 new solar energy installations by 2010. Community Partners include local energy providers, utilities, solar energy system designers, installers, government representatives, and community based energy experts. The Philadelphia MSR Community Partnership serves as the central point of contact, information clearinghouse, and facilitator for the Million Solar Roofs program in the region.

## Cumulative Installations

In the past 12 months, installation is pending or has been completed of 24 solar PV and 27 solar water heating systems. Over 74% of the Philly MSR goal has been reached: A total of 368 systems (72 solar PV systems and 296 solar water heating systems) have been installed since April 1999. Of the 72 solar PV systems installed in the Delaware Valley, 55 are residential and 17 are non-residential systems having a total capacity of nearly over 235 kilowatts of power. Applications are pending for another 46 solar PV systems to be installed over the next year.

## Solar Schools

Recently a non-functioning PV system installed on the Vocational School in the late '80's was returned to service. There are also plans for including a PV installation on the proposed Microsoft School to be constructed in the University City section of Philadelphia.

In addition, several hundred students – middle school through high school – have benefited by demonstrations of the Partnership's Solar House on Wheels. The number of requests for visits from environmental and science class instructors have increased in each of the last two years. Efforts to improve the educational materials made available to students seeing the SHOW are being pursued.

## **Leveraged Resources**

Over the past twelve months, \$89,771 of in-kind match in materials and labor were contributed to the partnership. In 2005 PMSR secured an Energy Harvest grant from the Commonwealth of PA in the amount of \$54,203 for the installation of a 5 kW photovoltaic system on the Cusano Environmental Education Center in the John Heinz National Wildlife Refuge at Tinicum. The project will also receive matching funds in the amount of \$20,000 from the Sustainable Development Fund. In addition, PMSR provided letters of support for approximately \$175,000 in successful Energy Harvest grants for projects within the PMSR Partnership service area.

## **Outreach**

- The SHOW demonstration engaged approximately 1,500 adults (including four dozen teachers) and 900 public and private school students.
- Over 10,500 Solar Service Guides and thousands of DOE publications were distributed through SHOW visits and the annual Suburban Home and Garden Show.
- There have been several large articles on solar applications in local Philadelphia dailies placed by the Partnership. PMSR has also had numerous articles and news items on DOE's MSR website and in the IREC newsletter.
- There was local TV coverage of the Governor's Environmental Excellence Award received by the Partnership, and on the award of the 2004 Energy Harvest grant for the National Wildlife Refuge project.

## **New and Noteworthy Accomplishments**

- The PMSR Partnership received a 2004 Governor's Environmental Excellence Award for its work on Pennsylvania's Advanced Energy Portfolio Standard (Act 213) and the steady growth of PV installations within the Partnership's boundaries.
- Applied for and received a Pennsylvania Energy Harvest grant in the amount of \$54,204 for the installation of a 5 kW photovoltaic system on the Cusano Environmental Education Center of the John Heinz National Wildlife Refuge at Tinicum.
- Participated in NESEA/ASES October 2nd Green Building Open House and Solar Tour featuring 19 Delaware Valley homes and

businesses. Featured installations were later converted to case studies on the PMSR website.

- PMSR Partnership educational outreach played a key role in securing Pennsylvania's passage of Act 213 providing for a portion of renewable electricity, and solar PV in particular, in the generation portfolio of every utility in the Commonwealth.
- Distributed over 7,500 copies of the Solar Services Guide, SDF brochure, DOE literature at events and meetings throughout the Philadelphia region.

## **Activities Underway**

- Currently a 5 kW installation is being installed on the Cusano Environmental Education Center of the John Heinz National Wildlife Refuge and a PA Energy Harvest grant has been applied for to put a 2 kW array on the Horticultural Center in Philadelphia's Fairmount Park.
- Efforts are also underway to secure a future Energy Harvest grant to place a solar PV installation on one or more of the boathouses on Philadelphia's world famous Boat House Row.
- Efforts to implement the solar energy component contained in Pennsylvania's Advanced Energy Portfolio Standard in a timely manner continue.

## **Upcoming Events**

The PMSR Partnership held its most recent Partnership meeting in mid-July. The Solar House on Wheels has four appearances in September and the Partnership is coordinating the largest list of solar sites in this year's NESEA/ASES Green Building Open House & National Solar Tour on October 1, 2005. Planning is underway for sponsoring a solar PV educational display workshop for a number of SE PA educational institutions with or planning solar electric installations.

## **What we could use help with**

The chief issue confronting the Partnership is the possibility of not being able to provide financial incentives for solar photovoltaic installations once the Sustainable Development Fund is exhausted. Enactment of financial incentives at the federal or state level would maintain progress towards both the MSR goal and cost-competitive solar energy applications. It has been increasingly difficult to



obtain DOE publications relating to solar energy. The on-hand supply of these pamphlets, brochures, and fact sheets is nearly exhausted.

### **Progress toward our MSR Goal**

The PMSR Partnership is on a course to reach the goal for the Philadelphia metropolitan area.

Continued progress in the future is less certain given the dwindling financial incentives provided by the Sustainable Development Fund. Currently the SDF grants are the only incentives available.

# Virginia MSR Partnership

## Partnership Lead Organization

- Contact Person: Ken Jurman (interim contact)
- Title: Renewable Energy Program Manager
- Contact Organization: Virginia Department of Mines, Minerals and Energy
- Mailing Address: 202 N. Ninth St., 8<sup>th</sup> Floor, Richmond, VA 23219
- Phone Number: 804-692-3222
- Fax Number: 804-692-3238
- Email Address: Ken.jurman@dmme.virginia.gov
- Website Address: www.dmme.virginia.gov

## Other Partners

## Year of Formation

1999

## Million Solar Roofs Installation Goal

500 systems by 2010

## Cumulative Installations

Until now Virginia has tracked the growth of solar based on reported net metering installations tracked by the Virginia State Corporation Commission. This method does not include solar thermal systems or off-grid installations of PV. Currently, there are approximately 103 kW of grid-ties PV systems installed.

## Solar Schools

Two elementary schools that we know of have installed systems for educational purposes. One intermediate school is currently installing solar PV, thermal and wind systems and integrated curriculum. One high school beginning construction plans to include a building-integrated PV system for educational purposes. Specific details (number of students, etc.) are not currently known and a methodology to track these specifics has not been developed.

## Leveraged Resources

Virginia does not currently offer any financial incentives for renewable energy technologies. Limited funding for pilot and demonstration projects has been made through the Department of Mines, Minerals and Energy.

## Outreach

Several Energy Fairs have been held in the central, southwest and tidewater regions of the state that included information on solar and other renewables.

## Activities Underway

- Virginia is in discussion with two established PV manufacturers interested in possible expanding manufacturing operations into Virginia.
- Legislators are considering the merits of establishing an RPS for the state,
- The Dept. of Environmental Quality is considering including renewable set-asides in their planning for the Clean Air Interstate Rule and Clean Air Mercury Rule.

These factors, combined with incentives in the Bush Energy Plan could significantly increase the number of renewable energy installations – especially in Virginia's ozone non-attainment areas.

## Upcoming Events

Virginia Sustainable Future Summit, September 13-15 in Richmond.

## What We Could Use Help With

The Virginia partnership is in need of complete reorganization. This will (hopefully) be addressed in the coming year.

**Progress Toward Our MSR Goal**

If citizen interest in solar is any indication, we are exceeding our goal. Actual installations, however, are a different story. Although there have been several solar installations in the past year, Virginia's low electric rates and absence of incentive programs keep potential buyers from making the investment.

# West Virginia Solar Energy Initiative

## Partnership Lead Organization

Contact Person: Debi Conrad, Program Coordinator  
Contact Organization: West Virginia Development Office, Energy Efficiency Program  
Mailing Address: State Capitol, Building 6, Room 645, Charleston, WV 25305  
Phone Number: (304) 558-0350  
Fax Number: (304) 558-0362  
Email Address: dconrad@wvdo.org  
Website Address:  
<http://www.wvdo.org/community/eep>

## Other Partners

- Shepherd University-Environmental Studies Institute
- Webster County Economic Development Authority
- Freshwater Institute of The Conservation Fund

## Year of Formation

2004

## Million Solar Roofs Installation Goal

The goal of this partnership is to identify barriers to the development of solar power infrastructure, provide technical assistance, education, and outreach to acquaint West Virginians with the economics and merits of solar energy utilization and to work with and encourage the business community for solar energy utilization. To accomplish these goals, the West Virginia Solar Energy Initiative will work toward establishing a program in West Virginia that will move West Virginia into a new energy market: solar energy.

## Cumulative Installations

We have not determined the number of installations at this point.

## Solar Schools

Not Applicable

## Leveraged Resources

Not applicable

## Outreach

Number of workshops held and kinds of audiences

- 2 --Attendees included: potential stakeholders, government, environmentalist groups, general public, education, building codes officials and inspectors, builders, contractors, engineers, and architects
  - Average number of participants 50
- Average number of website visitors approximately 25 per month
- Number of brochures, guides, directories, *etc.* printed and distributed 100
- Number of news articles, press releases 1
- Number of public events 1
  - Estimated attendance 50

## New and Noteworthy Accomplishments

- Developed a listing of solar panel installers in WV for dissemination to the general public.
- Placed solar program information on West Virginia Development Office's Energy Efficiency Program web site for education, information, and resource purposes.
- An assessment of national and West Virginia intrastate residential electricity prices has been completed.

## Activities Underway

- Initiated development of a geographical information system using Solar Analyst software to perform a geospatial analysis of solar opportunities in WV. Requisite geospatial data has been collected and development of a process flow plan for the analysis is underway. Analysis will include overlay of census demographics to determine opportunities for implementation of solar technologies in WV. Analysis should be completed by the end of third quarter 2005.

- Two interns have been working with Dr. Ed Snyder of Shepherd University researching PV initiatives in surrounding states as well as creating a data base for use at the conference to be held this Fall. Their work is being assembled for placement on a web-site that will be housed at Shepherd under the Institute for Environmental Studies. A poster being developed by the interns will be displayed at the World Solar Congress in Orlando this August (2005). The comparison of PV initiatives in surrounding states with West Virginia has been interesting and informative, and will be a major component of the poster presentation.
- Contacts with BP Solar and Shell Solar, regional installers of PV systems, builders that have an interest in PV and passive solar as a component of their construction, and interested parties in the area and through out West Virginia is a major component of both my and the interns activities.
- The group at Shepherd is in the process of contacting local politicians regarding their posture on solar, and the position of West Virginia regarding solar initiatives. Also, the lack of installers and architects with a base in solar applications in West Virginia as a direct result of no zero net metering or initiatives in the state to encourage PV use is being addressed in our study.

### **Upcoming Events**

A two-day seminar is being planned for September 17-18, 2005 and will be held in Shepherdstown, West Virginia. We have been coordinating the date of our conference at Shepherd to follow the West Virginia Environmental Consortium Conference on Renewable Energy to be held the 15<sup>th</sup> and 16<sup>th</sup> of September. By linking the conference on alternative energy with ours that focuses on PV but also includes components of sustainability and renewability we believe that many more West Virginians will participate. The conference at Shepherd is to be held the 17<sup>th</sup> and 18<sup>th</sup> of September, with presentations on the 17<sup>th</sup> and field excursions on the 18<sup>th</sup> to sites of PV use, passive solar architecture, and the BP Solar facility in Frederick, MD. A key site visit will be a Solar Development, both passive design and PV, being currently constructed in Gettysburg, PA.

### **What we could use help with**

The largest barrier is limited funding and lack of financial incentives for solar installations.

A smaller issue is lack of market acceptance and awareness

### **Progress toward Our MSR Goal**

Given the limited financial and personnel resources available, we are about where we anticipated the project to be at this point in time--having performed outreach activities and identified barriers. We plan to continue working toward our original goal.

# Midwest Region

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## Regional Office Report

### **Illinois**

Illinois Solar Energy Association/Chicago Solar Partnership

### **Iowa**

State of Iowa Million Solar Roofs

### **Michigan**

Great Lakes Renewable Energy Association

### **Minnesota**

Solar Minnesota

### **Missouri**

Missouri Million Solar Roofs

### **Ohio**

Solarize Ohio

### **Wisconsin**

Wisconsin Million Solar Roofs Initiative Partnership



## The Solar Year in Review For the Midwest Region

### *Prepared by the Midwest Regional Office*

There are seven partnerships in the Midwest Region, Chicago Solar Partnership, Ohio 4PV, State of Wisconsin, State of Minnesota, State of Missouri, and the State of Michigan headed up by the Great Lakes Renewable Energy Association.

Number of Installations:

Name of Partnership	Previous PV Installations (in kw)	FY04 PV Installations (kw)	Total PV Installations (in kw)
Chicago Solar Partnership	1626	150	1776
Solarize Ohio	473	110	573
Wisconsin MSR Partnership	76.7	22.5	99.2
Great Lakes Renewable Energy Association	710.16	58.4	768.56
State of Minnesota	216.56	106.1	270.8 *
State of Missouri	0	0	0
State of Iowa	70.2	27.5	97.7
Total	2956.06	368.4	3585.26

Solar Thermal Installations:

Chicago has installed 20,000kw thermal equivalents total.

Ohio has 5 rooftops for 250 ft<sup>2</sup>.

Wisconsin has 12,330 ft<sup>2</sup> or 45PV roof equivalents.

Michigan has 32,153ft<sup>2</sup> of solar thermal for DHW, pools and air.

Minnesota has 2280ft<sup>2</sup> of solar thermal.

Iowa has 2 solar thermal systems.

The partnerships in the Midwest Region have formed three working groups that are developing activities that will benefit the entire region. The working groups currently are the Education Working Group, the Marketing Working Group, and the Next Generation Homes Working group. These activities are funded by MSR discretionary funds received in the Midwest RO. The educational working group is developing a listing of all the training available in the Midwest and how to go about getting NABCEP certification.

The Marketing working group headed up by Glen Kizer is working on developing projects that can be accomplished in each of the states. The project this year is working with the YMCA's to place solar thermal applications on several of their pools.



The Next Generation of Homes, headed up by Niels Wolters, will be working on developing a document that would incremental work to get homes in the Midwest to zero energy homes.

These are exiting efforts that will develop additional working groups that will be formed from many of the partnerships.

### **Other Activities**

Many of the partnerships have had training/workshops for builders, homeowners, building inspectors, installers and schools.

### **Incentives:**

Illinois, Ohio, Michigan, Wisconsin and Minnesota all have or had incentives available for the installation of solar thermal and PV's. Wisconsin's largest utility, WE Energy, with the assistance of the partnership has developed a customer PV buy back rate that will be included in their Green Energy offerings.

### **Future Activities/Meetings:**

The next MSR Regional Meeting will be held November 8, that will be held in conjunction with the Chicago Solar Meeting that will target the 250 local suburbs and focus on energy security. The meeting will be called Solar Means Security: How Safe is Your Community. This meeting is being held at the Harold Washington Social Security Center and will include the dedication of the 100Kw PV system installed in June of 2005 on the SSA building.

# Illinois Solar Energy Association

## Partnership Lead Organization

Illinois Solar Energy Association  
PO Box 634  
Wheaton, IL 60189 — 0634  
[info@illinoissolar.org](mailto:info@illinoissolar.org)  
[www.illinoissolar.org](http://www.illinoissolar.org)  
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Chicago Solar Partnership  
C/o City of Chicago  
Department of Energy, Environment and Air  
Quality  
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[www.chicagosolarpartnership.com](http://www.chicagosolarpartnership.com)

## Other Partners

*CSP Affiliated Organizations:*  
BP America\*  
Center for Neighborhood Technology —  
Community Energy Cooperative  
Chicago Public Schools  
City of Chicago  
ComEd  
Illinois Solar Energy Association (ISEA)  
International Brotherhood of Electrical Workers  
(IBEW) - IBEW-NECA Technical Institute  
Solargenix Energy\*  
Solar Service Inc.  
Spire Solar Chicago  
U.S. Department of Energy — Million Solar Roofs  
Initiative

## Year of Formation

2000

## Million Solar Roofs Installation Goal

Our goal is 33,000 rooftops or equivalent installations of photovoltaic or solar thermal energy systems.

## About the Chicago Solar Partnership

The Chicago Solar Partnership (CSP) is a public-private consortium established, under the organization of the Illinois Solar Energy Association (ISEA), to advance the development of the solar energy industry in the Chicago metropolitan area. The CSP leverages the collective expertise of members and affiliate organizations which include: municipal governments, electrical utilities, organized labor, solar manufacturers, the financial community and educational institutions as well as aligned professional and advocacy organizations.

The CSP interfaces with state and federal governmental agencies, provides education and outreach services, technical assistance, and referral services for end users including home owners, investment property owners, commercial businesses and non-profit building operators as a means of facilitating progress toward attaining the US Department of Energy's Million Solar Roofs Initiative goal of adding an additional one million solar roofs by 2010.

## Cumulative Installations

Cumulative since the Partnership's formation:  
Photovoltaic:  
1.4 kilowatts - City of Chicago;  
1.736 State of Illinois

Year	kW
6.1.04 - Present	377.0
2002	101.9
2001	241.0
2000	16.0
1999	29.0
1998	5.4
1987	<u>4.2</u>
Total	1,776.0 kW

PV Installations - 2004: 150  
PV Installations - 2000 - 2004

City of Chicago: 450  
State of Illinois: 694  
Solar Thermal - 2000-2004  
91.5MM Btu/day displaced = 20,000kW thermal  
equivalent = Approx. 600 rooftop equivalents.

### Solar Schools

The number of schools and school districts within the Partnership area that have solar: 39

- How many classes per year are exposed to solar projects and lesson plans?
  - About 500
- Average number of students per class
  - About 25
- Grade levels
  - Mostly 5-8<sup>th</sup> grades
- Number of teachers trained
  - About 50
- Types of curriculum-based tools/resources you have developed
- Are they being shared with other MSR partners?
  - No, they have actually used curricula developed by other sources, such as the Florida Solar Energy Center and the Illinois Energy Education Day (ILEED) program.
- Real-time classroom displays of solar system output, or provision for some other student-accessible monitoring? Links to other schools?
- The chicagosolarpartnership.com website featured some of the Chicago Public School real time data in 2004. This will be expanded to other schools and transferred

### Leveraged Resources

The State of Illinois' Renewable Energy Resources Program (RERP) and the Renewable Energy Resources Program (RERP) Rebates and special assessments have been very helpful in providing market development support. In addition, the Illinois Clean Energy Community Foundation grants have also played a vital role in facilitating the development of solar energy projects.

Renewable Energy Resources Program (RERP)  
Grants

*Last DSIRE Review: 05/26/2005*

**Incentive Type:** State Grant Program

**Eligible Renewables:** Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Pool Heating

**Applicable Sectors:** Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government

**Amount:** 50%

**Maximum Amount:** \$400,000

The Illinois Department of Commerce and Economic Opportunity (DCEO) administer the Renewable Energy Resources Program (RERP) to encourage the use of renewable energy and to support economic development in Illinois. Currently, RERP grants for solar-thermal systems are available to state-government agencies, local governments, schools, nonprofits, businesses and residents. Solar-thermal energy is defined as "rooftop or ground-mounted panels to collect and transfer heat for space, water heating, and/or electric generation."

The maximum award is \$400,000, and a minimum of 50% cost-share is required. Applicants that have applied for funding from the RERP rebate program are not eligible for grant funding. Applications will be accepted on an ongoing basis through June 30, 2005, subject to funding availability. Preference may be given to projects that are cost-effective and/or projects that have high economic-development impacts. The full solicitation and an application form are available on the program web site.

The RERP is supported by the Renewable Energy Resources Trust Fund, which is Illinois' public benefits fund.

Renewable Energy Resources Program (RERP)  
Rebates

Last DSIRE Review: 11/23/2004

Incentive Type: State Rebate Program

Eligible Renewables: Solar Water Heat, Solar Space Heat, Photovoltaics

Applicable Sectors: Commercial, Industrial, Residential, Nonprofit, Schools, Associations

Amount: 50% for first \$10,000 of eligible project costs; 25% thereafter

Maximum Incentive: \$10,000

Eligible System Size: PV: rated design capacity >500 watts; Solar thermal hot water: designed to produce at least 1 kW or contain at least 20 sq. ft. of collectors; Solar thermal space heating: designed to produce at least 4 kW or contain 100 sq. ft. of collectors.

**Equipment Requirements:** PV systems must be UL-listed or have completed at least one year of field testing. Solar-thermal systems must be approved by the SRCC or a comparable organization.

**Program Budget:** Limited to funds available in the Illinois Renewable Energy Resource Trust Fund for that calendar year

**Ownership of Renewable Energy Credits:** Remain with customer/producer

**Website:**

<http://www.illinoisbiz.biz/com/energy/renewable.html>

**Authority 1:** § 20 ILCS 687/6-3

**Effective Date:** 1/98

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The Renewable Energy Resources Program (RERP) promotes the development and adoption of renewable energy in Illinois. This program is funded by the Renewable Energy Resources Trust Fund, the state's public benefits fund, and is administered by the Illinois Department of Commerce and Economic Opportunity (DCEO).

Applications will be accepted on an ongoing basis, with rebates awarded each fiscal year. The DCEO may provide up to 50% of the first \$10,000 of an eligible project costs, and 25% of project costs thereafter (a maximum total rebate of \$10,000). Systems with a total cost between \$30,000 and \$50,000 are eligible for the rebate but will not receive a rebate larger than \$10,000. Projects with a total value exceeding \$50,000 are ineligible. The rebate amount is based on actual project costs of equipment and installation. All systems, except those constructed by the homeowner, must be installed by a licensed, bonded and insured professional.

Eligible applicants include associations, public and private schools, colleges and universities, nonprofits, businesses and individuals. Potential recipients for program funding must be customers of an investor-owned utility or a municipal gas or electric utility, or an electric cooperative that imposes the Renewable Energy Resources and Coal Technology Development Assistance Charge.

Complete guidelines and application materials are available at the web site listed above.

**Special Assessment for Renewable Energy Systems**

*Last DSIRE Review: 09/02/2004*

**Incentive Type:** Property Tax Exemption

**Eligible Renewables:** Passive Solar Space Heat, Solar Water Heat, Solar Space Heat, Photovoltaics, Wind, Geothermal Electric

**Applicable Sectors:** Commercial, Industrial, Residential

**Max. Limit:** None

**Authority 1:** [§ 35 ILCS 200/10-5](#)

**Authority 2:** [§ 35 ILCS 200/10-10](#)

This statute provides a special assessment of solar-energy systems for property tax purposes. Solar equipment is valued at no more than a conventional energy system. Eligible equipment includes active and passive solar-energy systems, as well as wind and geothermal systems.

Illinois Clean Energy Community Foundation Grants

Last DSIRE Review: 05/23/2005

**Incentive Type:** Private Grant Program

**Eligible Renewables:** Passive Solar Space Heat, Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Wind, Biomass, Fuel Cells, Other Distributed Generation Technologies

**Applicable Sectors:** Nonprofit, Schools, Local Government, State Government

**Amount:** Varies

**Max. Limit:** Varies

**Website:**

<http://www.illinoiscleanenergy.org/programs/overview.htm>

**Authority 1:** § 220 ILCS 5/16-111.1

**Date Enacted:** 6/30/99

**Effective Date:** 6/30/99

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**Summary:**

The Illinois Clean Energy Community Foundation (ICECF) was established in December 1999 as an independent foundation with a \$225 million endowment provided by Commonwealth Edison. The ICECF invests in clean-energy development and land-preservation efforts, working with communities and citizens to improve environmental quality in Illinois. The ICECF provides grants, on a competitive basis, to programs and projects that improve energy efficiency, develop renewable-energy resources, and preserve and enhance natural areas and wildlife habitats in Illinois.

The first step in the grant-application process involves submitting a letter of inquiry. The letter must describe the proposed project, explain the need for the project and summarize the total project

expenses and proposed sources of funding, including the specific amount requested from the ICECF. Following a review of letters of inquiry, the ICECF will notify all applicants whether to submit a full proposal. When the ICECF invites a full proposal, it will specify what information the proposal should include, as well as the supporting documents that must be submitted with the proposal. Typically there are two grant cycles per year, with deadlines for letters of inquiry in January and July. These grants support wind, solar (thermal and electric applications), biomass, fuel cells and other forms of distributed generation.

With respect to PV projects, the ICECF will give preference to building-integrated PV systems and/or PV systems installed on buildings that attain a rating of LEED Silver or higher. These systems must supply at least 25% of peak building load.

In May 2005 the ICECF announced that it would initiate a demonstration-scale PV program for K-12 schools and other local government and nonprofit children's educational facilities. Program details will be announced in fall 2005, in advance of a grant application deadline in early 2006.

Grant amounts will be considered on a case-by-case basis, taking into account cost-effectiveness of the project, project innovation, simple project payback, other sources of funding and owner contribution.

Illinois Incentives for Renewable Energy

Special Assessment for Renewable Energy Systems

Last DSIRE Review: 09/02/2004

Incentive Type: Property Tax Exemption  
Eligible Renewables: Passive Solar Space Heat,  
Solar Water Heat, Solar Space Heat, Photovoltaics,  
Wind, Geothermal Electric  
Applicable Sectors: Commercial, Industrial,  
Residential

Max. Limit: None

Authority 1: § 35 ILCS 200/10-5

Authority 2: § 35 ILCS 200/10-10

Summary:

This statute provides a special assessment of solar-energy systems for property tax purposes. Solar equipment is valued at no more than a conventional energy system. Eligible equipment includes active and passive solar-energy systems, as well as wind and geothermal systems.

In addition, ComEd has provided on-going website design and maintenance services.

## Outreach

- Solar thermal workshops:
  - 2 Ogle County Fair
  - 2 - Religious Organizations: Faith in Place, Northbrook Islamic Center,
  - 3 - Historic Chicagoland Bungalow Association
  - 1 - Women's Resource Fair
  - 1 - Rotary Club
  - 1 - North Side Prep High School
  - 1 Niles West HS, Nile North
  - 3 -4 Out of State
- Average number of participants - Range 20 -50 Average
- Average number of website visitors - 1 million, or about 3,000 "hits" per day. T

## General Summary 1:

Analyzed requests from Thu-14-Aug-2003 10:47 to Sat-22-May-2004 04:30 (281.74 days).

*This report contains overall statistics.*

Figures in parentheses refer to the 7-day period ending 21-May-2004 23:30.

**Successful requests:** 902,893 (19,664)

**Average successful requests per day:** 3,204 (2,809)

**Logfile lines without status code:** 921 (0)

**Successful requests for pages:** 85,174 (2,120)

**Average successful requests for pages per day:** 302 (302)

**Failed requests:** 14,851 (364)

**Redirected requests:** 1,428 (92)

**Distinct files requested:** 715 (279)

**Distinct hosts served:** 13,765 (595)

**Corrupt logfile lines:** 34

## General Summary 2:

Analyzed requests from Tue-15-Jun-2004 00:08 to Thu-11-Aug-2005 22:39 (422.94 days).

*This report contains overall statistics.*

Figures in parentheses refer to the 7-day period ending 11-Aug-2005 17:40.

**Successful requests:** 1,266,919 (24,497)

**Average successful requests per day:** 2,995 (3,499)

**Logfile lines without status code:** 1,338 (0)

**Successful requests for pages:** 135,792 (2,538)

**Average successful requests for pages per day:**

321 (362)

**Failed requests:** 29,038 (568)

**Redirected requests:** 2,690 (63)

**Distinct files requested:** 642 (286)

**Distinct hosts served:** 20,074 (654)

**Corrupt logfile lines:** 42

Number of brochures, guides, directories, *etc.*  
printed and distributed:

About 10,000

Number of news articles, press releases:

- - High visibility press has been garnered primarily for solar thermal installations with millions of exposures:  
50+ - Articles Including:  
10 - Taco Burrito commercial story  
4 - Laundromat Fire and Re-Build stories  
30 - Solar Tour Articles - Pioneer Press -  
4 - Feature Stories - Daily Herald, Chicago Tribune, Chicago Sun Times  
Oak Park Journal, Forest Park Journal  
Wired Magazine - National, 600,000 circ.  
WBEZ Radio Coverage  
2 Business Channels - First Business News  
Local Cable Access - Program played for 3 months

**New and Noteworthy Accomplishments**

The City of Chicago now boasts more solar PV installations than any city outside California. Also unique to Chicago, much of this capacity is located on buildings within the City limits, as opposed to ground-mounted installations in outlying areas. By siting panels on buildings, more land is preserved for open space and productive use. With the addition of solar thermal manufacturing resources, the City of Chicago and surrounding municipalities are poised to accelerate the number of solar energy installations in the years ahead.

The solar thermal market is accelerating. Solar Service reports an overwhelming number of new orders. Solargenix is ramping up manufacturing including large-scale City installations and exports. Strong mayoral support continues to set the pace and expectations regarding the importance of solar energy in the metropolitan area. This support coupled with increasing high level state government interest in renewables is creating a climate that is more favorable to solar energy industry development than in previous years.

The CSP will continue to develop strategic alliances with key government, labor, and private sector organizations to reduce market barriers and develop the solar energy industry infrastructure in the metropolitan area.

**Activities Underway**

The CSP website is being updated through the donation of hosting and design development resources contributed by ComEd.

The CSP has introduced a peak power diagnostic study proposal to determine the effectiveness of large scale, distributed solar generation in improving grid performance. Funding initiatives are in process.

The CSP is evaluating a establishing/adopting a standard for installer certification. The IBEW will manage the qualified contractors list. Similar lists for will be developed for solar thermal installers and are expected to be managed by the Pipefitters and Plumbers unions.

**Upcoming Events**

There will be a regional MSRI initiative meeting on November 8, 2005 followed by a one day session, *"Solar Means Security: How Safe is Your Community?"* targeted to 250 mayors of surrounding municipalities. The role of solar energy in emergency management planning and operations will be addressed. CSP meetings are held as needed.

**What We Could Use Help With**

Largest barrier to progress facing the Partnership now:

The absence of State of Illinois solar energy specifications/goals in its sustainable energy initiative. Without State of Illinois specifications and/or regional state incentives of \$80MM per year over 5 years, it is expected solar industry market development, especially the photovoltaic market, will lag compared to the West, Southwest, and East coast regions of the country.

The solar energy industry in Illinois is challenged with moving forward from early market development tactics, i.e. 'feature demonstration projects', to more mainstream, long term development strategies with quantifiable megawatt goals. Strong public support from senior ComEd and other electric utility senior executives

accompanied by plans to support large scale distributed solar energy will assist goal attainment. This scale of market development will require high level coordination between federal, state, and local governments, electrical utilities, labor organizations, manufacturers and financial institutions.

Smaller, nagging issues: Public/Commercial top line information and resources, and experienced personnel to provide this.

### **Progress toward Our MSR Goal**

We are not on target on a progressive basis, as state-level funding support for solar has fallen off in Illinois since 2002. The advent of the federal residential solar tax credit and increase of the business energy tax credit may put us back on track, but state-level support will be critical.

# State of Iowa MSR Partnership

## Partnership Lead Organization

- Contact Person: Jennifer Moehlmann
- Contact Title: Program Planner
- Contact Organization: Iowa Department of Natural Resources
- Mailing Address: 502 E. 9<sup>th</sup> Street/Des Moines, IA 50319
- Phone Number: 515/281-8518
- Fax Number: 515/281-8895
- Email Address: [Jennifer.Moehlmann@dnr.state.ia.us](mailto:Jennifer.Moehlmann@dnr.state.ia.us)
- Website Address: <http://www.iowadnr.com/energy/>

## Year of Formation

1999

## Million Solar Roofs Installation Goal

500 installations.

**Mission Statement:** PV technologies will be an accepted technology in new and existing construction in the Midwest.

## Cumulative Installations

2004

Type	Number of Installations	Capacity	Roof Equivalents
PV	5	27.5 kW	11
Solar Thermal	1	N/K	N/K

Cumulative since 1999

Type	Number of Installations	Capacity	Roof Equivalents
PV	34	70.2 kW	40
Solar Thermal	1	N/K	N/K

\*Please note these numbers are different from past years', because they do not count systems smaller than 0.5 kW.

## Solar Schools

One

- How many classes per year are exposed to solar projects and lesson plans? Not known
- Average number of students per class Not known
- Grade levels 9-12
- Number of teachers trained Not known
- There is a real-time display in one classroom.



## **Leveraged Resources**

Not known

## **Outreach**

- Average number of website visitors: Not available
- Number of brochures, guides, directories, *etc.* printed and distributed: Not available
- Number of news articles, press releases: One advertising the May 10, 2004 event (see below)
- Number of public events: One – on May 10, 2004, hosted the Iowa State University Solar Car Kick-off at the State Capitol in Des Moines.
  - Estimated attendance: Press coverage reached an estimated 581,286 viewers/readers.

## **New and Noteworthy Accomplishments**

The Iowa Energy Office, in conjunction with the City of Cedar Rapids, the Iowa Renewable Energy Association, Alliant Energy, and a private business owner, is in the process of installing and interconnecting a 7200-watt array in a brownfield redevelopment and historic site in Iowa. Connected to a kiosk delivering real-time data, the array will serve as an educational piece for the region as well as create power for the building owners.

## **Activities Underway**

Through the 2005 Program, the Iowa Energy Office is currently updating the Midwest Yellow Solar Pages, as well as the Solar Power Midwest website. The Iowa Energy Office will send out an electronic post card, notifying interested, regional stakeholders, and will make actual postcards available to distribute at different renewable energy events in the state.

The Iowa Energy office is also working with the Iowa Brownfield Coordinator as well as the American Institutes of Architecture - Iowa Chapter and the Iowa Association of Municipal Utilities to educate designers, engineers, utility managers, and city planners about the role solar power may play in sustainable building and redevelopment.

Finally, the Iowa Energy Office has collaborated with the *Des Moines Register's* **HomeSTYLE** magazine to develop ads and editorial content about the potential for solar power in the state.

## **Upcoming Events**

Iowa Energy Office staff is planning to present at the annual AIA-Iowa Meeting and at the EPA-sponsored Midwest Summit on Sustainable Redevelopment of Brownfields, both in September. The subject of both presentations will be how to incorporate solar power into sustainable design and/or redevelopment. The Cedar Rapids Solar Array described in number 11 will be installed through a series of training workshops in September.

## **What We Could Use Help With**

Price of systems (see below), availability of net metering, interconnection standards. Other smaller issues include perception that solar doesn't work in Iowa.

## **Progress Toward Our MSR Goal**

Without significant reductions in the price of solar energy systems, the State of Iowa probably will not meet its goal of 500 systems by 2010. The major obstacles are the high prices of solar energy systems, the relatively low cost of electricity in Iowa, and the lack of substantial financial incentives.

# Great Lakes Renewable Energy Association

## Partnership Lead Organization

Contact Person: Jennifer Alvarado  
 Contact Title: Executive Director  
 Contact Organization: Great Lakes Renewable Energy Association  
 Mailing Address: PO Box 346; Dimondale, MI 48821  
 Phone Number: 800-434-9788  
 Fax Number: 517-646-8584  
 Email Address: jennifer.alvarado@glrea.org  
 Website Address: www.glrea.org

## Other Partners

\*Austin Fuller Heating and Cooling  
 \*Blue Link Solar  
 \*City of Ann Arbor  
 \*City of Wyandotte  
 \*Decker Homes  
 \*DoveTail Solar  
 DTE Energy  
 General Motors  
 GMB Architects  
 Kelly-Tinker Architects  
 Lansing Board of Water and Light  
 Lawrence Technical University  
 Northwestern Michigan College  
 Pierce Cedar Creek Institute  
 S.U.R. Energies  
 Shepherd Advisors  
 Small Business Association of Michigan  
 State of Michigan Energy Office  
 Sundu Solar Energy  
 Urban Options

## Year of Formation

2001

## Million Solar Roofs Installation Goal

500 systems by 2010

The Great Lakes Renewable Energy Association's mission is to increase the mainstream use of renewable energy technology and sustainable energy practices.

## Cumulative Installations

GLREA receives about 40% participation in the MSR Survey

	2004		Cumulative	
<i>Technology</i>	<i>Number sold</i>	<i>Total sq.ft./watts</i>	<i>Number sold</i>	<i>Total sq.ft./watts</i>
<i>Solar (Air)</i>			13	1,687
<i>Solar (Liquid)</i>	11	784	19	1,648
<i>Solar (Pool)</i>	40	14,418	101	28,818
<i>Solar Electric (PV)</i>	21	58,400	101	768,560

## Solar Schools

10

- How many classes per year are exposed to solar projects and lesson plans, 60
- Average number of students per class, 25
- Grade levels, 4th - 8th grade. Mostly 5th grade.
- Number of teachers trained, 52
- Types of curriculum-based tools/resources you have developed  
 SolarSchools®  
 Science Wonders Assemblies
- Are they being shared with other MSR partners?  
 No, but GLREA is working with a new curriculum that can be shared in winter 2005.
- Real-time classroom displays of solar system output, or provision for some other student-accessible monitoring? 10
- Links to other schools? 2

## Leveraged Resources

Solar Domestic Hot Water Rebates - \$300,000  
State Grants - \$100,000

## Outreach

- Number of workshops held and kinds of audiences:  
24 in 2004  
16 to date in 2005  
50 since 2001  
Audiences: homeowners, builders, inspectors, professionals, decision makers
- Average number of participants:  
20
- Number of brochures, guides, directories, *etc.* printed and distributed  
In 2005, 10,000
- Number of news articles, press releases  
2005, 15
- Number of public events

Solar Tour	500
GLREA conference	160
Renewable Energy Conference	150

## New and Noteworthy Accomplishments

### Go Solar Program

GLREA conducted its' first year of the Go Solar Ann Arbor Program. Go Solar Ann Arbor is a program offered to Ann Arbor area residents that focuses on installation of solar energy systems through a facilitated aggregate purchasing program. The program includes an educational seminar, introduction of a local dealer and a presentation on 1 standardized solar domestic hot water system and 1 standardized photovoltaic system. The program participants are able to apply for purchase of one or both of the systems after the seminar. The installer then follows up with the program applicants to assess their home/business for installation, offer a purchase agreement and proceed with the installation of the system. The incentive to sign-up for the program is that the installer is offering a solar energy system at a discount rate. GLREA will add Grand Rapids to the area the program serves this year.

## Activities Underway

Go Solar Program  
Solar Domestic Hot Water Rebate Program  
Washtenaw County 10 kW PV installation  
MI Net Metering Program Design  
Forming of a Michigan Sustainable Energy Coalition  
Expansion of the Uni-Solar Manufacturing Plant  
Solar Thermal Training Program  
PV Certification Program

## Upcoming Events

### Photovoltaic Apprentice Training

August 15-19, 2005

Dimondale, MI

### Intermediate Solar Heating Seminar & Installation

August 26-27, 2005

Dimondale

### Introductory Renewable Energy Seminars

September 10, 2005

### Photovoltaic Apprentice Training

October 3-7, 2005

Northwestern Michigan College

### Michigan Solar Tour

October 8, 2005

### Unleashing the Potential: The Future of Energy in Michigan

October 20-21, 2005

### Intermediate Photovoltaics

November 5, 2005

Dimondale, MI

## What We Could Use Help With

The Michigan Solar Roofs Partnership could use help from policy specialists or other state partnerships to help educate Michigan decision makers.

## Progress toward Our MSR Goal

GLREA is on target to reaching 500 solar energy system installations by 2010. At the end of 2004, with only a 40% participation rate in the Michigan Solar Installation Survey, GLREA can account for 234 installations. At this point, we may increase our target if the Michigan Solar Domestic Hot Water Rebate systems allow us to get ahead of our goal. We will not know that until the end of this year.

# Solar Minnesota

## Partnership Lead Organization

- Contact Person: Mike Taylor
- Contact Title: Program Administrator
- Contact Organization: MN Dept of Commerce
- Mailing Address: 85 7<sup>th</sup> Place E, Suite 500
- Phone Number: 651-296-6830
- Fax Number: 651-297-7891
- Email Address: [mike.taylor@state.mn.us](mailto:mike.taylor@state.mn.us)
- Website Address: [www.commerce.state.mn.us](http://www.commerce.state.mn.us) or [www.SolarMinnesota.org](http://www.SolarMinnesota.org) (primary)

## Other Partners

Name	Sector
City of Duluth*	Local gov't
City of Minneapolis*	Local gov't
Conservation Technologies*	Business
Green Institute*	Non-profit
Innovative Power Systems	Business
MN Dept of Commerce	State gov't
MN Office of Env Assistance	State gov't
Minnesota Renewable Energy Society	Non-profit
Odysen (formerly Distributed Power Solutions)	Business
U.S. EPA, Region 5*	Federal gov't

## Year of Formation

2003

## Million Solar Roofs Installation Goal

500

No formal Mission Statement has been adopted although we will now develop one.

## Cumulative Installations

	Total		Res	Res	NR	NR	NR	Total
<b>Photovoltaics</b>	kW	#	kW	#	kW	#	Equiv.	MSRI
1997 - 2002	56.2	29	27.1	16	30.8	13	21	37
2003	55.0	16	8.7	9	28.5	7	19	28
2004	106.1	36	57.5	30	48.6	6	32	62
2005	53.4	12	27.4	10	26.0	1	17	27
<b>Total</b>	<b>270.8</b>			<b>65</b>			<b>89</b>	<b>154</b>
2005 TBD	46.6	12	18.3	7	28.3	5	19	26

	Total		Res	Res	NR	NR	NR	Total
<b>Solar Hot Water</b>	ft2	#	ft2	#	ft2	#	Equiv.	MSRI
1997 - 2002	1184	5	640	3	544	2	18	21
2003	800	2	640	1	160	1	5	6
2004	200	1	200	1	0	0	0	1
2005	96	1	96	1	0	0	0	1
<b>Total</b>	<b>2280</b>			<b>6</b>			<b>23</b>	<b>29</b>

## Solar Schools

- K12 Schools - 3
- Environmental Learning/Nature Centers - 6
- Higher Education - 1
- Other (Museum, Zoos, Library) – 4
- Curriculum information is unknown.
- Monitoring Displays – at least 5

## Leveraged Resources

Minnesota Solar Electric Rebate Program ~ \$410,000 in MSRI eligible rebates

Minnesota Power Solar Electric Rebate Program (utility) \$75,000 in MSRI eligible rebates

## Outreach

Name	Event(s)	Participants	Examples
Electric Code Officials, Utilities, Electricians	4	~100	Training workshops: Duluth (2), Grand Rapids, Saint Paul
General Consumers	5	750+	Living Green Expo, Solar Homes Tours (3), Day-long workshop, Solar Boat Regatta
Software Training	1	~30	RETScreen Training

## **New and Noteworthy Accomplishments**

- \* Largest PV system in Minnesota and surrounding states (34 kW) installed in 2004
- \* Strong community solar progress (multi-stakeholder solar installations on a local business, school, etc)

In-Process	Completed
Audubon Nature Center, Mora (8 kW)	Duluth Library, Duluth (2.4 kW)
City of Duluth, Duluth (1 kW)	Green Institute, Mpls (34 kW)
City of Minneapolis, Mpls (10 kW)	Hartley Nature Center, Duluth (13.1 kW)
Duluth Airport, Duluth (TBD)	Lake Superior Zoo, Duluth (3 kW, 60 ft <sup>2</sup> )
East Harriet Neighborhood, Mpls (TBD)	Old Man River Café, St Paul (1 kW)
Izzy's Ice Cream, St Paul (8 kW)	Wedge Food Coop (416 ft <sup>2</sup> )
Linden Hills Food Coop, Mpls (8.6 kW)	Wolf Ridge Env. Center, Finland (0.9 kW)
North Shore School, Duluth (2.7 kW)	
Seward Neighborhood School, Mpls (1 kW)	
St. Louis County, Duluth (10 kW)	
Temple Israel, St. Louis Park (10 kW)	
Total: 59.3 kW	Total: 54.4 kW, 466 ft <sup>2</sup>

## **Activities Underway**

- \* Community Solar Initiative
- \* Strengthening Consumer Outreach
- \* MN Solar Rebate Program
- \* Educational Displays Initiative
- \* Solar Thermal Development
- \* Training (consumers, code officials, utilities, dealers)

## **Upcoming Events**

- \* Monthly partnership meetings
- \* Twin Cities, Duluth, Brainerd Solar Homes Tours (October 1)
- \* Community Solar Training (September 24)
- \* Living Green Expo (May 2006)
- \* Solar Boat Regatta (May 2006)

## **What We Could Use Help With**

- \* More Funding – some delineation of standard “coordinator” funding for all partnerships (or every other year or something) and competitive “program funding” through solicitations (the Clean Cities program did this in part – otherwise they eat into each other) – I do appreciate the special funding for attending regional/national events
- \* Centralizing Information Requests – Larry Sherwood, Jane Pulaski, DOE, and Midwest DOE seems to ask for the same information in different formats (solar on schools, MSRI progress, etc) – can I give standard information to one person that is then shared?

## **Progress Toward Our MSR Goal**

- \* 183 units out of 500 unit goal with 5 years to go – seems fine

# Missouri Million Solar Roofs

## Partnership Lead Organization

- Missouri Department of Natural Resources' Energy Center
- Contact Person: Pat Justis
- Contact Title: Energy Engineer
- Contact Organization: Missouri Dept. of Natural Resources' Energy Center
- Mailing Address: P.O. Box 176; Jefferson City MO 65102
- Phone Number: (314) 340-5930
- Fax Number: (314) 340-5904
- Email Address: pat.justis@dnr.mo.gov
- Website Address:  
<http://www.dnr.mo.gov/energy/index.html>

## Other Partners

Missouri Botanical Garden Earthways Center

## Year of Formation 2004

## Million Solar Roofs Installation Goal

500 by 2010

### Mission Statement:

The Missouri Department of Natural Resources' Energy Center is a non-regulatory state agency that works to protect the environment and stimulate the economy through energy efficiency and renewable energy resources and technologies.

## Cumulative Installations

Number of installations in calendar year 2004,  
**ZERO.**

Cumulative since the Partnership's formation.  
**ZERO.**

## Solar Schools

We are just now implementing our Missouri Schools Going Solar project and do not yet have data. Our installations have begun and we expect 9 in 2005 and 6 more in 2006.

- Links to other schools? **YES!**

## Outreach

- Number of workshops held and kinds of audiences: **1 (midwest MSR meeting)**
- Average number of participants: **15**
- Number of brochures, guides, directories, *etc.* printed and distributed: **3 PDF Available online.**
- Number of news articles, press releases: **3**
- Number of public events: **1 (2004 Home Energy Weekend)**
  - Estimated attendance: **400**

## Activities Underway

- Installation of 9 solar schools.
- Applied for SEP grant to set up solar education training in Springfield, MO.
- Implementing new Missouri MSR Web site.

## Upcoming Events

*Home Energy Festival Sept 17-18, 2005*

## What We Could Use Help With

Installation cost with no financial incentives. No Net Metering.

## Progress Toward Our MSR Goal

We'll need some major policy changes in Missouri to make the goal, but we will continue to work toward it.

# Solarize Ohio

## Partnership Lead Organization

- Contact Person: Glen Kizer
- Contact Title: President
- Contact Organization: Foundation for Environmental Education
- Mailing Address: PO Box 340581, Columbus, Ohio 43234
- Phone Number: 614-336-0776 Fax Number: 614-540-7463
- Email Address [Glen@LearnEnergy.org](mailto:Glen@LearnEnergy.org)
- Website Address: [www.the-Environment.org](http://www.the-Environment.org)

## Other Partners

- Green Energy of Ohio
- State of Ohio's Office of Energy Efficiency
- American Electric Power's Learning from Light Program
- Ohio Energy Project

## Year of Formation 1998

## Million Solar Roofs Installation Goal

1,000 roofs by 2010. Our mission is to use high profile solar installations to help educate the entire population of Ohio that solar energy can and does work here and should be utilized as a source of energy.

## Cumulative Installations

- PV: in 2004: 14 installations: 110 kW Total MSRI Roofs: 242. 573 kW
- ST: in 2004: 0 installations: 0 square feet. Total MSRI ST: 5 roofs. 250 square feet
- Total MSRI count: 247 roofs

## Solar Schools

Solar Schools = 100 roofs

- How many classes per year are exposed to solar projects and lesson plans? More than 100
- Average number of students per class approximately 30
- Grade levels: all grade levels including college

- Number of teachers trained: more than 100
- Types of curriculum-based tools/resources you have developed
  - Are they being shared with other MSR partners? Basically we use a variation of the NEED educational models/tools/resources which are being used nationwide.
- Real-time classroom displays of solar system output, or provision for some other student-accessible monitoring? Links to other schools? We just began adding the real time data collection to our schools. The first two are completed and we will gradually go around and add these systems to all of our schools. We are also linking these schools to other schools around the region and around the country and to some of our schools outside the US. Our first on line real time data collection for a school outside the US is in England and that data can be found on line at Fat Spaniel.com and will appear on our Web site later this summer.

## Outreach

Our approach does not rely on training programs and public meetings for our initiative. Our partner, Green Energy of Ohio, held a number of public meetings around Ohio and educated hundreds of people about solar energy. Green Energy Ohio also organizes and administers the annual ASES solar tour and there were hundreds more on that tour and it will be done again this year. Our primary approach is ribbon cuttings and newspaper and television coverage of our high profile installations. For example, a local CBS station, Channel 10, did a story about our installations in Westerville. There were a number of ribbon cuttings in which hundreds of people attended each ribbon cutting for our solar school projects. There were a number of newspaper stories about solar and renewable energy. Our Web site has had more than 1,000 hits in 2004 and we distributed our solar videos to schools. Our partner, the Ohio Energy Project also did in classroom outreach.



### **New and Noteworthy Accomplishments**

During 2004 we arranged for special financing to be set up so that solar thermal installations could be done without the need for capital dollars. Our plan is to begin these installations in the Fall of 2005 and continue through all of 2006. It is our hope and our belief that we will be able to do solar thermal installations on large buildings in big numbers based on our financing package. We have also started to add Web based data collection systems to our projects and several are on line today. Go to [Fat Spaniel.com](http://FatSpaniel.com) to view this data. It will also start appearing on our Web site later this summer.

### **Activities Underway**

Our first solar thermal installation with our special financing will go in this fall.

### **Upcoming Events**

Training for builders is coming up in early 2006 and the ASES Annual Meeting will be held in Cleveland.

### **What We Could Use Help With**

More help with financing packages and tax impacts.

### **Progress Toward Our MSR Goal**

We recently doubled our MSRI goal from 500 to 1,000 roofs by 2010. We are ahead of our original schedule and on track to exceed our new goal of 1,000 roofs.

# Wisconsin MSR Partnership

## Partnership Lead Organization

Don Wichert  
Director, Renewable Energy Programs  
Wisconsin Energy Conservation Corporation  
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[donw@weccusa.org](mailto:donw@weccusa.org)

## Other Partners

Niels R. Wolter, Associate MSB Energy Associates, Inc. 7507 Hubbard Ave., Suite 200 Middleton, WI 53562-3135 Phone (608) 831-1127, ext. 308  <a href="mailto:Wolter@msbnrg.com">Wolter@msbnrg.com</a>	Alex DePillis State of Wisconsin 101 East Wilson, 6th Floor, PO Box 7868 Madison WI 537087 Phone: 608 266 1067 Email: alex.depillis@doa.state.wi.us
Ingrid Kelley Energy Center of Wisconsin 595 Science Drive Madison Wisconsin, 53711 Phone: 608.238 8276 x 136 Email: <a href="mailto:ikelley@ecw.org">ikelley@ecw.org</a>	

## Year of Formation

1999

## Million Solar Roofs Installation Goal

3860 system installed by 2010

Mission Statement: Help make solar energy systems a mainstream option for meeting the energy needs of Wisconsin consumers.

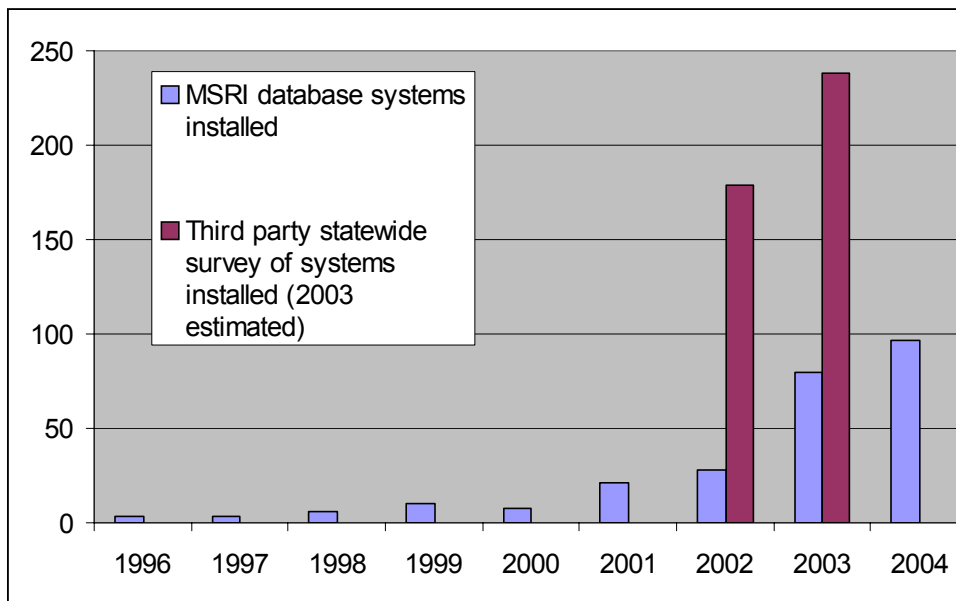
## Cumulative Installations

Cumulative: 295 in MSRI database

In 2004:

- Over 95 systems (over 56 solar hot water and over 39 PV)
- 295 MSRI roof equivalents (250 solar water roof equivalents and 45 PV roof equivalents)
- 12,330 ft<sup>2</sup> of solar thermal
- 99.2 kW of PV

We feel that these numbers are low. Many systems go in without our awareness, thus they are not included in the Wisconsin MSRI database. For example, a Wisconsin specific market research study showed 124 PV systems and 55 solar hot water systems were installed in 2002. For 2003, they estimated 140 PV systems and 98 solar systems. The table below shows the solar systems (not MSRI roof equivalents) installed between 1999 and 2004. Note the disparity between the survey data and the MSRI database.



## Solar Schools

There are 53 schools, roughly 35 school districts (cumulative to date). Two programs are active in this area: the K-12 Energy Education Program (KEEP) and SolarWise® for schools. MGE has a solar for schools program; the KEEP program does all their teacher education.

- How many classes per year are exposed to solar projects and lesson plans? About 750 classes in 2004
- Average number of students per class: about 20
- Grade levels: k - 12
- Number of teachers trained: about 115 teachers in 2004
- Types of curriculum-based tools/resources you have developed
  - WPS Community Foundation developed a three-week renewable energy curriculum package that is provided to each school. Along with the student workbook, each school receives a set of supplemental materials that includes solar testing equipment, audio-visual materials, software and printed reference materials.
  - KEEP has developed an activity guide on renewable energy, titled "Doable Renewables" for K-12 teachers. This guide is available only to teachers through the KEEP inservice. During the course, teachers are introduced to renewable energy concepts and then explore how they can use lessons on the guide to integrate the concepts into their curriculum. The KEEP Web site ([www.uwsp.edu/keep](http://www.uwsp.edu/keep)) has a page devoted to renewable energy education and we are in the process of developing an online course on renewable energy education. KEEP hosts an Educator Tent during the Renewable Energy and Sustainable Living Fair where teachers receive graduate credit and resource materials to encourage them to use the event to support their professional development in renewable energy education.
- Are they being shared with other MSR partners?
  - SolarWise® curriculum materials are copyrighted and available for purchase by schools outside of Wisconsin Public Service's territory.
  - The KEEP Web site is available to anyone; the guide however, is only available to teachers who participate in the KEEP inservice course. The KEEP conceptual framework that identifies key concepts in renewable energy (as identified by a Delphi panel of RE experts) is on the Web site and also available upon request.
  - Real-time classroom displays of solar system output, or provision for some other student-accessible monitoring? Links to other schools?
  - See Madison Gas and Electric's solar schools at: <http://mge.com/environment/solar/host/index.htm>

## **Leveraged Resources**

- Focus on Energy PV Incentive Program: Co-funded of solar systems in 2004: roughly \$120,000 for solar hot water heating, and \$185,000 for PV systems.
- Focus on Energy solar project Facilitation, Education, Marketing, Barrier Reduction, etc. during 2004: roughly \$80,000

## **Outreach**

- In 2004, ten workshops offered through the Midwest Renewable Energy Association (MREA) on solar energy related topics (solar water heating, basic intermediate and advanced PV, solar site assessment training, etc.) they were attended by 213 students, with students include individuals to system installers. Also the MREA's Annual Renewable Energy and Sustainable Living Fair (with tens of solar energy related workshops with 40 to 60 students in each workshop).
- Average number of website visitors:
  - [www.wisconsun.org](http://www.wisconsun.org): Not available
  - [www.focusonenergy.com](http://www.focusonenergy.com): hundreds per month
- Number of brochures, guides, directories, etc. printed and distributed: Thousands
- Number of news articles, press releases: Not tracked
- Number of public events: 12 presentations on solar electric systems

Other measurable outreach outcomes from our Partnership.

- One new fact sheet (Solar in the City)
- Continuous updating of Wisconsin Renewable Energy Yellow Pages, Solar Hot Water full service installers list, the Solar Electric full service installers lists, renewable site assessor list, renewable energy demonstration site listing, etc.

## **New and Noteworthy Accomplishments**

- Redesigned PV incentive program to provide higher incentives to NAPCEP installers and those in the process of NABCEP certification, and systems going in on new commercial buildings and Wisconsin Energy Star® homes.
- Working with the city administration of Madison Wisconsin, to be a green/solar city.
- Included renewable energy program information in utility bill stuffers and green power rate customer newsletters.
- Team worked with Wisconsin's largest electric utility, We Energies, to develop new customer PV buyback rate (22.5 cents per kWh generated by the PV system) to be included in their green power offering ("Energy for Tomorrow").
- Dramatic increase in PV system installations in June 2005 and larger systems at commercial buildings. Thirty-five applications came in for PV systems in June 2005 as the previous eleven months.
- Targeting LEED learning commercial buildings and architectural firms

## **Activities Underway**

- Analysis of solar electric ground-sourced geothermal zero energy homes
- Working with Rural Electric cooperatives on interconnection issues

## **Upcoming Events**

- Planning a PV Promotional meeting for prospective installers and systems owners, as well as architects, builders and developers in Milwaukee. Schedule for November 2005.
- New economics of PV fact sheet

**What We Could Use Help With**

- Simple market acceptance by the mainstream audience.
- Need to reduce the risk that natural gas prices will drop for larger commercial solar thermal projects, which require large investors and financing.

**Progress Toward Our MSR Goal**

We are happy with our progress. A State public benefit funding restrictions could hamper solar market growth.

# Northeast Region

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## Regional Office Report

### **Maine**

State of Maine

### **Massachusetts**

Brockton Solar Champions Partnership  
Cape Cod Million Solar Roofs Partnership  
Massachusetts Million Solar Roofs  
National Grid USA  
Vineyard Energy Project, Inc.

### **New Hampshire**

New Hampshire Million Solar Roofs Initiative Partnership

### **New York**

Long Island Solar Roofs Initiative  
New York State Energy Research & Development Authority

### **Rhode Island**

State of Rhode Island

### **Vermont**

Vermont Solar Roofs Partnership

# **The Solar Year in Review For the Northeast Region**

## ***Prepared by the Northeast Regional Office***

This past year, we have seen a dramatic rise in public interest in solar energy. It has been easier to deal with as existing partnerships become rejuvenated and stronger as state legislators, state energy offices, systems benefit providers, local activists and public utility commissions and utilities continue to reform existing structures or strictures that impede the greater use of solar energy in the region.

Partnerships in the region are beginning to take note of the successes of others with certain initiatives, and replicating them. The Long Island Solar Roofs Initiative Solar Corps, for example, is an effort aimed at identifying, training and promoting a cadre of photovoltaic solar households to speak with neighbors regarding the technology, how it works for them, and how it could work for the new purchaser. Most of us get our plumbers, electricians, house painters, and even our cars based on first hand experience from our neighbors.

New York State Energy Research and Development Authority has launched a very innovative program aimed at recruiting solar installers through the PV Installer Internship Program working with the broad educational community.

Our one and only Brightfield, the Brockton Solar Champions Partnership, has released its RFP for the public-private partnership that seeks to spur economic development, protect the environment, create a local energy source protected from market volatility, and retain local investments in the city.

There also seems to be renewed interest in solar domestic hot water in the region. Several of the partnerships are looking to expand their efforts in this area. One in particular is working with the Weatherization Assistance Program in this regard. This is a huge and untapped area for SDHW in our region.

This year, we have a new partnership in New York City. City University of New York, with its 19 college campuses, a veritable juggernaut of influence, outreach and education that we hope will

thoroughly impact the 5 Burroughs and make solar energy as common in the Big Apple as it is anywhere else in the country.

We thank our Systems Benefit Charge(SBC) funds providers for providing critical support to the Million Solar Roofs Partnerships with innovative programs and initiatives that foster the increased use of renewable energy in our region. We acknowledge the critical work being done by partnerships in states where there are no SBC funds.

We congratulate and look forward to seeing all of the Solar Decathlon entrants this year, and we are particularly proud of those from the Northeast. In addition, we have had great success introducing the topic of wind technology to our states through our MSR partnerships and KidWind, and we hope to conduct a pilot effort combining the MSR partnerships with small wind this coming year.

And lastly, we thank the partnerships themselves and the many groups and individuals that make up each and every one of those partnerships.

We look forward to another very active annual regional peer to peer meeting again this coming year among the partnerships, SBC providers, and the industry.

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# State of Maine

## **Partnership Lead Organization**

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04333-0018  
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Website address: <http://www.maine.gov/msep/>

## **Other Organizations in the Partnership**

Although we have no formal partners, we work closely with:

- Maine Solar Energy Association
- Maine Energy Investment corporation

## **Solar Roof Goal**

500 roofs by 2010

## **Cumulative Installations**

The first interim report shows a total of 119 solar roofs which qualify. However, this information is still incomplete, and no aggregation of smaller installations has been calculated as yet.

## **Partnership Focus or Mission Statement**

Currently our mission is to establish a solar roof data base, and work with solar installers and their organizations around the state to establish present solar roof counts, and keep the count updated.

## **New and Noteworthy Accomplishments**

The best news we have to date is a new solar incentive signed into law recently by Governor Baldacchi. Basically the law provides rebates for solar pv and domestic hot water installations on residential and commercial buildings in Maine. This exciting new initiative will address the pent-up need for solar installations in Maine providing some much needed funding. Details can be found by accessing our website at <http://www.maine.gov/msep/>

In the last year, Maine, with the assistance of the Maine Solar Energy Association, completed many of the initiatives set forth in its solar roof plan. We designed and established a database to collect information on current solar installations and track future installations in Maine. Further information on our progress on tasks outlined in the Plan is outlined below:

Task I. Maine Solar Primer: The new, revised, 2nd Edition of the Maine Solar NESEA is carrying it in their bookstore and other solar groups as far away as Oregon and Michigan are selling copies as part of their promotion of solar systems.

Task II. Million Solar Roofs Database: The MSR database is now up to 464 entries. 148 of those have actual detailed information about solar roofs and 119 qualified for inclusion in our Million Solar Roof list, according to the criteria we had received. A number of the members and professional contacts in Maine have lists of qualifying solar roofs and we still have to contact them and get the information about their systems.

Task III. Outreach: During this quarter, MESEA was very active in giving workshops and taking part in fairs and other activities, spreading the word about solar energy.

MESEA took part in the following events:

Photovoltaic/Solar Thermal Installation Workshop  
August 2004

For the first time in a decade, the Maine Solar Energy Association (MESEA) organized a workshop to install one of our PV/Hot water Hybrid collectors.

Greenhouse Workshop, Columbia Maine 14-15  
August 2004

This workshop, held at the off-grid home of Joan McMurrey. The participants actually built a free standing greenhouse as part of the workshop

Solar Workshop, Athens Maine 21-22 August 2004  
We started with a general overview of solar energy, and the basics of thermal physics and heat transfer, hands-on session assembling a solar box cooker, using the new design for the foam solar cooker in the 2nd Edition of the Maine Solar Primer; an



explanation of how photovoltaic (PV) cells are made and how they work. Participants then built a small solar battery charger. We then talked about how to use PV modules in a small camp.

On the second day of this two-day workshop, we addressed the photovoltaic system. At this workshop, we installed a 6 collector 300 watt PV system for the remote home. We also went over the details of installing stand-alone and grid-intertie PV systems and discussed the different types of inverters.

Skowhegan Solar Workshop 15- 17 October 2004  
This workshop came about as a result of our workshop in Athens last August. One of the participants there, Iver Lofving wanted to get a solar water heater installed on his home in Skowhegan, and since he was a teacher at the local Skowhegan Vocational Center, he arranged to have the workshop an official function of that center.

On Friday, the 15th of October, we held a very well attended free lecture in one of the Vocational center's classrooms. While the main focus of the lecture was on solar thermal systems and solar water heaters in particular, the lecture covered all aspects of solar energy, including a presentation on passive solar architecture and photovoltaics.

A hands-on workshop followed on the 16th. We disassembled a set of three old solar water heater collectors that had been removed from the Cutler Naval Base and checked them over to see what problems had developed in the 24 years since their original installation. Participants received an explanation of how the collectors worked, then broke up into teams to renovate the collectors and fix the pinhole leaks we found in the riser pipes, as well as build an external heat exchanger to allow efficient transfer of heat from the water-propylene glycol antifreeze solution running through the collectors to the potable water in the storage tank. Many of the participants were tradesmen and well versed in plumbing and construction techniques so the repair work went very smoothly, with two of the participants taking over the job of troubleshooting the leaks in the collector manifolds, although every participant got a chance to solder at least one copper tubing joint.

On Sunday, the 17th, we turned to the process of installing the collectors and modifying a brand new electric water heater to make it into a solar storage tank. We used the two tank plumbing system

showed in the Maine Solar Primer. One team installed the pressure treated wood roof supports onto the standing seam metal roof, while the other team learned how to install the heat exchanger, circulation pump and the other parts onto the water heater tank.

Most of the participants who took part in the workshop are very interested in seeing this type of technology taught at the Vocational Center. We discussed the possibility of working with the local manufactured home companies to offer solar water heating as a pre-installed option on the homes made in Skowhegan and sold all over New England.

MESEA, on behalf of the Maine Million Solar Roofs Program, also participated in the following Fairs and Events

American Solar Energy Society annual Meeting,  
Portland, Oregon 9-14 July 2004

Richard Komp, President of the Maine Solar Energy Association, was part of a team of four experts that gave a full day pre-conference workshop on Solar Thermal systems and Passive Solar Architecture.

MESEA set up a solar display on the lawn next to grandstand at the Bluebill Fairgrounds. The display based on a unique greenhouse design (shown in the NEW Maine Solar Primer) was very popular. We included photovoltaic modules and a section of the PV/hybrid collector as well as a flat plate solar water heater absorber plate. We had two solar box cookers working to cook lunches and demonstrate to people another aspect of solar energy.

Common Ground Fair, Unity, 24-26 September 2004

MESEA has been taking part in this fair ever since it started in the late 70's. This year, in addition to the usual MESEA booth, we had four different solar box cookers as a working demonstration. On Friday, we cooked dozens of solar cookies to give to the school children, stopping by our booth as part of their school assignment "treasure hunt". The public interest in our displays (and in solar energy in general) was very high, and Dr. Komp collected information from a number of "off-grid" users of PV for the MSR database. Dr. Komp also give a talk on Saturday afternoon on "New Developments in Photovoltaics in the CG Fair Greening of Technology speakers' tent.

Fall Fair at the Canadian Falls Brook Centre 11-12 September 2004

This was the 12th year that MESEA has taken part in this Fair at the Falls Brook Center in northern New Brunswick. This year we had PV battery charger assembly workshops on Saturday and Sunday afternoons followed by a tour of the sustainable facility. MESEA also had a booth at the Fair.

Independent Energy Producers of Maine Annual Meeting 30 November 2004

MESEA has been a member of this organization since its inception several years ago. During the informal pre-banquet discussions, I managed to pick up several more potential entries for our MSR database.

### **Activities Underway**

An exciting activity underway which will lead to an increase in the number of solar roofs in Maine, is the DownEast Solar Co-Op program. This program – funded by a small grant to the Maine Energy Investment Corporation from Maine’s SEP program, will be using various incentives to promote the installation of solar roofs in Maine.

### **Upcoming Events**

“Solar for Maine’s Churches” funded by a small MSR grant, will launch it’s program soon. The central feature of the proposed project is a series of 2-3 hour workshops for Maine’s faith community. Six to ten workshops will be held, each at a different house of worship. Workshops will profile solar thermal, solar hot water systems and both small and larger solar electric (PV) systems. The benefits of these systems will be described, in both financial and social/ environmental terms. Such benefits as the energy and environmental savings; visibility for the congregation; inspiration and education for the sponsoring house of worship and for other faith communities; enhanced property value; and other both tangible and less tangible benefits will be discussed.

### **What We Could Use Help With**

At this time, we are looking for ways to fund actual development and upkeep of the data base. We have an organization poised to do the work (the Maine Solar Energy Association), but not the resources to make that possible.

We also need funding to update our Maine Million Solar Roofs Plan. This plan was developed several years ago. Much work and progress have taken place in Maine since that time, and the plan needs to be updated with accomplishments noted and new goals set forth.

# **Brockton Solar Champions Partnership**

## **Partnership Lead Organization**

Contact Person: Lori R. Colombo, Brownfields Coordinator

Contact Organization: City of Brockton

Mailing Address: City Hall, 45 School Street

Phone Number: (781) 648-2605

Fax Number: call to obtain

Email Address: [LRColombo@aol.com](mailto:LRColombo@aol.com)

Website address: [www.ci.brockton.ma.us](http://www.ci.brockton.ma.us)

## **Other Partners**

City of Brockton, Office of the City Planner, Brockton 21<sup>st</sup> Century Corporation (nonprofit economic development agency), Brockton Public Schools, Metro South Chamber of Commerce, Brockton Interfaith Community, Bay State Gas Company, Massachusetts Electric Company, Rockland Trust Company, Brockton Rox (minor league baseball team, considering joining), KEMA-XENERGY (energy consultants)

## **Year of Formation**

2003

## **Million Solar Roofs Installation Goal**

The Brockton Solar Champions Partnership commits to installing at least 30 systems by 2010. We will reach the MSR objective of 500 systems through equivalents. The first phase of our solar Brightfield alone (500 kW DC installed) meets the requirement. We commit to an additional 29 installations, for a projected total of 750 kW installed by 2010.

The partnership's mission is to propel Brockton to a leadership position in the deployment of solar energy through:

- Development (in multiple phases) of a 1 MW solar "Brightfield" on Grove Street
- Installation of at least 100 kW of rooftop solar (PV and solar thermal) city-wide
- Use aggregation, bulk purchasing, and creative financing to reduce capital costs of solar
- Sale of green power and renewable energy certificates using innovative models that utilize economies of scale, financial incentives, and creativity to increase solar revenues
- Public-private partnerships including government agencies at the local, state and federal levels
- Demonstration of solar installations on low income, energy efficient housing

Brockton initiated this program to spur economic development, protect the environment, create a local energy source protected from market volatility, retain Brockton's energy investments in Brockton, and improve Brockton's image.

## Cumulative Installations

Number of installations in calendar year 2004 and cumulative

Total # Installations	# PV Installations	# SHW Installations	Installed Capacity (kW <sub>DC</sub> )	Equiv. Res. Installations	\$ Incentives	MSR Facilitated
1	1		2.76	1.1	\$ 8,694.00	1

## Solar Schools

One school in Brockton has installed solar. Brockton High School is the largest high school in the Commonwealth of Massachusetts with 4,200 students.

- How many classes per year are exposed to solar projects and lesson plans? Approximately 20 in the past year.
- Average number of students per class? Approximately 22.
- Grade levels 9-12.
- Number of teachers trained. 5.
- Are they being shared with other MSR partners? No.
- Real-time classroom displays of solar system output, or provision for some other student-accessible monitoring? Links to other schools? The system output is available through the Soltrex website and is used in the classroom.

<http://www.soltrex.com/systems.cfm?systemid=S00000000216&sortby=site&ascdesc=asc&startraw=21&watchid=SW0000000000>.

## Leveraged Resources

The City of Brockton received a \$1,040,000 grant commitment from the Massachusetts Renewable Energy Trust, a \$59,400 grant from the US DOE State Energy Program, and a \$25,000 grant from the Sheehan Family Foundation to develop the solar Brightfield. NiSource (parent company of Bay State Gas Company) donated \$5,000 towards educational displays.

The PV System donated to Brockton High School by Evergreen Solar and installation services donated by Conservation Service Group are valued at approximately \$21,000.

## Outreach

- One workshop was held for partner agencies (five participants) and one workshop was held in conjunction with Bridgewater State College "Teacher Content Institute" (approximately 40 teachers from eastern and central Massachusetts).
- Number of brochures, guides, directories, *etc.* printed and distributed? 15
- Number of news articles, press releases. Approximately five press releases resulting in 15-20 articles. The Brightfield project was featured on Boston network news on March 2, 2005. Also, the Brockton High School system installation and dedication ceremonies were filmed and broadcast on the local community access cable station.
- Number of public events? Two.
  - 1) The Clean Energy Tour in which four periods of high school classes received educational programming and educational materials were distributed to the general public at a high school football game.
  - 2) The Brockton High School dedication.
- Estimated attendance? Approximately 1,500 cumulative.

### **New and Noteworthy Accomplishments**

The primary focus of Brockton's solar activities remains the proposed 500 kW solar "Brightfield". A significant accomplishment was the passage on February 17, 2005 of a home rule petition (Chapter Five of the Acts of 2005) authorizing the City of Brockton to finance, install and operate the Brightfield. The text of the act appears at <http://www.mass.gov/legis/laws/seslaw05/sl050005.htm>. Since then, the City has focused on completing project financing. A Request for Proposals to develop the facility was issued in July 2005.

The City of Brockton Planning in Board issued final approval on August 2, 2005 for the development of the Foster Street Condo Complex (24 units of condos, each with PV).

### **Activities Underway**

- Completion of project financing and obtaining proposals for development of solar Brightfield.
- Obtaining debt financing (municipal bond) for "Green School" to be developed on Quincy Street
- Planning for public meeting and builders workshop

### **Upcoming Events**

The members of the Brockton Solar Champions Partnership look forward to the installation of two major PV projects in the upcoming year including:

- Proposals to Design, Install, Operate and Maintain Solar Brightfield are due on August 31, 2005. Groundbreaking ceremony anticipated in November 2005.
- Groundbreaking for Foster Street Condo complex anticipated in Fall 2005. The 24 units of condos will feature 71.6 kW of installed PV.

### **What We Could Use Help With**

One specific area where Brockton has requested help is the review of vendor proposals for the Solar Brightfield.

### **Progress Toward Our MSR Goal**

We are on target to meet our total installed capacity goal with the imminent completion of both the Brightfield and Foster Street Condo complex. Future activities will be to increase general education and outreach as well as technical assistance to facilitate the development of additional rooftop installations. We are behind schedule with respect to the general education and outreach since the Brightfield project has been required more time and resources than anticipated.

# Cape Cod Million Solar Roofs Partnership

## Partnership Lead Organization

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## Other Partners

Clean Energy Design, Waquoit Bay National Estuarine Research Reserve, Cape Cod Community College, Cape Cod Commission, \*Bell Plumbing, Cape Cod Regional Technical High School and Upper Cape Regional Technical High School, Cape Light Compact, Water Energy and Ecology Information Services and NSTAR.

## Year of Formation

2004

## Million Solar Roofs Installation Goal

Cape and Islands Self-Reliance Corporation (Self-Reliance) has established a Cape Cod Million Solar Roofs Partnership, with a goal of 510 solar roof systems to be installed on Cape Cod by the year 2010. Self-Reliance is a non-profit organization that was established in 1981. The mission of the organization is to promote environmentally sound technologies and sustainable practices through education, advocacy and collective membership. Self-Reliance is a community-based organization that for over 11 years has been working to promote the use and implementation of renewable energy, in conjunction with increased energy efficiency, and is therefore very familiar with the numerous barriers related to solar energy.

The core approach of the proposed Cape Cod Million Solar Roofs project is building community around the topic of energy. It is our belief that this is the primary way that we will be successful in

reaching the Million Solar Roofs goal as well as our larger vision of producing as much energy as we use.

## Cumulative Installations

Over the last year, we have made some headway in setting of policies and regulations, as well as with the actual installations of solar systems. We have installed 55 kilowatts of residential photovoltaics and 1828 square feet of solar thermal and brought back 640 square feet of thermal back on line. With the guidance of the MSR "Expanded System Qualification Guidelines" we have determined that we have installed the equivalent of 178 systems in the last year. Given the number of photovoltaic installations that came on line, the greenhouse gas emissions reduced for Massachusetts by these systems are approximately 157,630 lbs of Carbon Dioxide, 770 lbs of Sulfur Dioxide, 247.5 lbs of Nitrogen Oxide and 198 grams of Mercury. For the 2,469 square feet of solar thermal, emissions reductions for Massachusetts are 231,818 lbs of Carbon Dioxide, 1,133 lbs of Sulfur Dioxide, 350 lbs of Nitrogen Oxide and 291 grams of Mercury.

## Solar Schools

TWO-Cape Cod Regional Technical High School and Upper Cape Regional Technical High School

How many classes per year are exposed to solar projects and lesson plans? At least 45.

Average number of students per class? 22

Grade levels K-12, plus trades schools and community college

Number of teachers trained? 55

Types of curriculum-based tools/resources you have developed? Renewable energy lending kits, renewable energy curriculum, solar sprint and battery charger

Real-time classroom displays of solar system output, or provision for some other student-accessible monitoring? Links to other schools? The two regional technical high schools have data logging equipment from their 3 solar system.

**Leveraged Resources**

Massachusetts Technology Collaborative funds, Cape Cod Economic Development Council, Cape Light Compact, WBNERR's Coastal Decision-Maker funding and other organizations that we do teacher training with.

**New and Noteworthy Accomplishments**

We continue to do more community-based social marketing for increasing people's understanding of the technology, increase the adoption of solar and get higher visibility systems on line.

**Activities Underway**

Tradespeople training, education and outreach to citizens and teachers and students.

**Upcoming Events**

Photovoltaic installers workshop at the Cape Cod Community College in the fall, continuing thermal and PV workshops with the regional technical high schools and planned workshops for architects, plumbers and electricians. Teacher trainings planned for the winter months of 2005-2006.

**What We Could Use Help With**

Lack of panels for PV. Getting more town officials familiar with solar technologies.

**Progress Toward Our MSR Goal**

I think we are doing pretty well toward our target, but we have to keep working hard to reach the goal.

# Massachusetts Million Solar Roofs

## Partnership Lead Organization

Contact Person: Jan Gudell, Renewable Energy  
Project Coordinator  
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Resources  
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## Year of Formation

2004

## Million Solar Roofs Installation Goal

MSR commitment is 500 solar energy systems (or the equivalent thereof) installed at Massachusetts state facilities. The Massachusetts Million Solar Roofs Partnership seeks to increase the use and visibility of solar energy at state facilities throughout the Commonwealth.

## Cumulative Installations

The Massachusetts MSR Partnership has not yet begun to focus on installations, but there are PV installations at the following MA state colleges and universities:

- Cape Cod Community College
- UMass Dartmouth (Solar Decathlon)
- UMass Lowell Engineering Bldg. (2.5kW)
- Mt. Wachusett Community College
- Springfield Tech. Community College
- Massachusetts Hospital School

## Solar Schools

There are a number of state colleges and universities that will be the focus of a renewed outreach effort once a coordinated implementation strategy is adopted by MSR partners.

## Outreach

We have not begun a concerted outreach effort yet, as we have recently finished Phase I of our work plan. We've developed an implementation plan. We have designed introductory brochures and have begun distributing them to state agencies. We have held one public event with an estimated attendance of 40.

Each month, DOER responds to between 10 and 12 requests for information on solar energy (technology, state and federal tax incentives, grants and rebates, economics of solar energy) from businesses and residents in throughout the Commonwealth.

## Activities Underway

Working with other state agencies -Operational Services Division, Executive Office of Environmental Affairs, State Sustainability Program, and Division of Capital Asset Management— and a non-profit organization, Solar Northeast, to discuss strategies for coordinating various efforts related to renewable energy project development in the Commonwealth. On August 18 various representatives from the aforementioned agencies will meet to resume discussion on MSR goals and an effort to develop a statewide contract for small renewable energy technology.

Discussions with City of San Diego to model an RFP for “solar services” based on the one San Diego developed.

## Upcoming Events

Partnership meetings, solar fairs, exhibits, training programs, *etc.*

## What We Could Use Help With

For this partnership, coordination amongst state agencies with varying degrees of resources and interest in solar energy remains a challenge.



**Progress Toward Our MSR Goal**

We have identified an implementation strategy and are in the process of introducing it to partners within state government. If we are successful in

issuing a “solar services” RFP, we are confident that we will be able to meet and possibly exceed our goal.

# National Grid USA

## Partnership Lead Organization

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## Other Partners

None

## Year of Formation

1997

## Million Solar Roofs Installation Goal

Facilitate the utility-PV system interconnection process through simplified and expedited forms and procedures.

## Cumulative Installations

National Grid stopped providing financial incentives for PV systems in 1998 as a direct result of utility restructuring in Massachusetts. Prior to this the company either contributed to or donated approximately 95 PV systems.

## Solar Schools

At least 13 schools in 13 districts (this includes several colleges).

## Leveraged Resources

Estimate \$50K of in-kind services applied to promote the MSR program.

## Outreach

Estimate 2-3 responses each week to customer calls or e-mails on PV-related questions.

## New and Noteworthy Accomplishments

The new Massachusetts DG interconnection process, which includes PV systems, was implemented this year with simplified requirements and expedited processing of all PV systems rated at 10 kW or less. A new interconnection tracking process has confirmed that such systems are being dealt with very promptly across the state.

## Activities Underway

National Grid (NG) participates in the ongoing Technical Working Group under the Mass. DG Collaborative which is working on processes to simplify PV system installation on utility *network* power distribution systems (in contrast to the usual far more common radial systems)

NG responds to questions from the general public on PV systems, relayed by MSR web site, as well as questions from our customers via telephone or e-mail. C. NG monitors performance of existing PV sites to the extent practical. D. NG employs a contractor to analyze current PV energy forecast models versus actual kWh output for 6 PV systems in central Massachusetts.

## Upcoming Events

None

## What We Could Use Help With

COST CALCULATIONS: It would be a great help if some government lab or contractor developed a simple spreadsheet for people to plug in (1) a proposed PV system cost, (2) estimated system life, (3) a loan/mortgage rate, (4) local electricity cost, and (5) the contribution from a state SBC fund: this will help to easily determine if a PV system makes sense economically.

# The Vineyard Energy Project, Inc.

## Partnership Lead Organization

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Website: [www.vineyard-unplugged.org](http://www.vineyard-unplugged.org)

## Other Partners

Self Reliance Corporation, NStar, Cape Light Compact, Martha's Vineyard Commission.

## Year of Formation

2002

## Million Solar Roofs Installation Goal

500 roofs by 2010.

The Vineyard Energy Project promotes sustainable energy choices through education, outreach and renewable energy projects.

## Cumulative Installations

PV systems 2002- now, 58 systems, 54 eligible Total of 81,525 kw (DC)

SHW systems 2002-now, 14 systems, 911 sf, plus 1 batch heater

Pool heating in 2005, 2 systems , 816 sf

PV systems in 2004, 23 systems, 20 eligible Total of 43,060 kw (DC)

SHW systems in 2004, 5 systems, 384 sf, plus 1 batch heater

## Solar Schools

Martha's Vineyard has 6 towns with:

4 Schools K-8 , 1 has 2.4 kw, 1 has 1.12 kw

1 School K-5 has 2.7 kw on adjacent gym building

1 Charter School K-12 has 2.88 kw

1 High School 9-12, 1-75 w panel lighting a light on athletic field

The Cape Light Compact has set a goal of a 2.5 kw system on an elementary school in each of the Cape and Vineyard towns in this next year. To be funded by people opting for Green Power as part of their electrical supply and by the Massachusetts Renewable Energy Trust.

How many classes per year are exposed to solar projects and lesson plans? 46

Average number of students per class? 20

Grade levels? elementary school, grades K - 6

Number of teachers trained?

2 day-long workshops of 15 teachers each, a summer week-long workshop for 1 teacher, 3 evening seminars with 4 teachers and an average of 46 parents each. An afternoon training workshop for 2 teachers and 4 daytime seminars for 12 parent/teachers each.

Types of curriculum-based tools/resources you have developed?

Curriculum is based on hands-on learning through NEED kits, kids teaching kids, solar monitoring, model solar car races, solar carnivals, solar poster contest, energy efficiency workshops prepared by students for parents/teachers, creating prize-winning scrapbook (top elementary school in state in energy education), bringing community energy experts into classrooms, solar/renewable energy scavenger hunt, Energy Day, and poster display.

Are they being shared with other MSR partners? Yes, our closest partner is in Falmouth, MA. We also shared this information at the MSR Partnership meeting in the fall, 2004, in Vermont.

Real-time classroom displays of solar system output, or provision for some other student-accessible monitoring?

Student teams monitor solar system output and chart the progress, sometimes comparing solar output with weather charts.

Links to other schools?

Student teams from different schools share data, analysis and strategies.

### **Leveraged Resources**

The success of our program has been very reliant on the Massachusetts Renewable Energy Trust's subsidy programs. Most PV systems would not have been installed without this funding as support.

The Cape Light Compact has promoted solar when doing Energy Audits and has provided additional funding for our Education Coordinator, making it possible for her to continue to do the work.

### **Outreach**

Workshops:

Zero Energy Homebuilding Workshop for Architects and Builders; Fall 2004;  
Attendance about 35 people

Website Use:

TBD this year. We have just switched to a more official website maintainer.

Number of brochures, guides, directories, *etc.* printed and distributed:

Solar Map showing 14 island demonstration sites and providing information about The Vineyard Energy Project; 2000 printed; about 1000 distributed thus far. 2 sided, 1 page handout about PV and SHW on the Vineyard. About 750 printed and distributed this year.

Number of news articles, press releases:

10 this year including ones sponsored by VEP which highlighted community members who had gone solar or made energy efficiency efforts.

Number of public events:

End of Oil talk; Spring 2005; 350 people attended  
Energy Forum; Spring 2005; 125 people attended

Energy Fair; Spring 2005; 500 people attended

### **New and Noteworthy Accomplishments**

The most effective way we sell solar on the Vineyard is through peer influence. For this reason, continuation of articles in the 2 island newspapers about people who have "gone solar" and the development of a Solar Corps are seen as our 2 most promising ideas.

### **Activities Underway**

Dissemination of information about solar. Promotion of solar to summer community through solar open houses and display at annual Agricultural Fair.

### **Upcoming Events**

Solar Electric Code Training with John Wiles in the Fall; Solar Hot Water training for plumbers if funding obtained; development of a Solar Corps of Homeowners modeled on Long Island's program; energy efficiency construction workshop for architects and builders; promotion of an island-wide 10 year Energy Action Plan.

### **What We Could Use Help With**

The largest single barrier remains COST. Continuation of seminars that provide information about projects in other communities that have successfully inspired people would be helpful.

### **Progress Toward Our MSR Goal**

We are progressing at a steady pace and expect to meet our goals more gradually than previously expected. Cost remains a huge obstacle to solar electric. The hope is that if we can fund a training for plumbers, that we can focus on promoting solar hot water, particularly to houses currently heating water with electricity.

And, we have a shortage of subcontractors to install systems of either kind due to a significant rise in property values that has resulted in a shortage of affordable housing for tradesmen, teachers and others whose pay scale is similar.

It is our hope that our Energy Action Plan will also inspire islanders to join our 500 Solar Roof goal.

# New Hampshire MSR Initiative Partnership

## Partnership Lead Organization

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## Other Partners

Plymouth Area Renewable Energy Initiative, Plymouth NH. [www.plymouthenergy.org](http://www.plymouthenergy.org) NH Office of Energy and Planning contracted with this organization to spearhead the NH Partnership's efforts. They have enlisted the following partners, who have contributed funds and/in-kind support:

- Meredith Village Savings Bank, Meredith NH
- Woodsville Guaranty Savings Bank, Woodsville NH
- Pemigewasset Savings Bank, Plymouth NH
- Squam Lakes Science Center, Holderness NH
- Plymouth State University, Plymouth NH
- Common Man Inn, Plymouth NH
- USDA Forest Service, Plymouth NH
- NH Sustainable Energy Association, Pike NH
- Rands Hardware Store, Plymouth NH
- NH Electric Cooperative, Plymouth NH (has been a partner from inception of NH MSR Partnership)
- Solarworks, Holderness NH
- KW Management, Nashua NH
- Blue Link, Portland ME
- Jordan Institute, Concord NH
- Lutz Property Management, Plymouth NH
- EVP Creative, Waterville Valley NH
- D Acres, Dorchester NH
- Larry Mauchly, Electrician, Plymouth NH
- New England Environment Grassroots Fund, Montpelier VT

Public Service of New Hampshire – past support for Solar on Schools – interested in renewable power generation applications (biomass, wind, and solar)

## Year of Formation

2000

### Million Solar Roofs Installation Goal

500 roofs: “NH-MSRI will design a realistic, statewide implementation plan, tailored to New Hampshire’s specific needs and situation, for the state’s MSRI Partnership to reach its commitment of 500 solar systems by 2010.”

### Cumulative Installations

NH tracks installations dating from the start of the NH Partnership. One of the objectives of this grant is to devise a more comprehensive tracking system. Here are the data as they now exist:

Notes: No Btu information currently available for DHW; some PV kW information not available. This summary understates the actual numbers but will become more accurate as we build and reconcile data from our various information sources.

New Hampshire Million Solar Roofs Partnership Summary for 2004-2005						
Total Roofs As of 2004	DHW	PV off Grid	kW Off Grid	PV Grid Tied	kW Grid Tied	Total kW 2004
85	8	18	19.1	59	118	137.1
New Roofs 04-05	DHW	PV off Grid	kW Off Grid	PV Grid Tied	kW Grid Tied	New kW 2004
14	5	3	4	6	21	25
Total Roofs 04-05	DHW	PV off Grid	kW Off Grid	PV Grid Tied	kW Grid Tied	Total kW 04-05
99	13	21	23.1	65	139	162.1

### Solar Schools

21 systems in schools, including 16 public schools; 4 systems on universities/colleges; one independent school.

9 additional installations at non-school educational institutions;

1 installation at a high-visibility public housing site.

Since 2004, our focus has been on developing grassroots outreach efforts such as the Plymouth Area Renewable Energy Initiative.

The NH Solar on Schools and Renewable Energy Technology Grants programs are no longer active. Their required reporting periods have expired; thus complete current data on curricula, classes, students contacted, etc. are no longer available. A sampler from the Renewable Energy Technology Grants program is presented below:

Site: Squam Lakes Natural Science Center – PV and solar heating for rest rooms building with exhibit

Total visitors 2004: 64,746. Breakdown: General public: 45,577. Schools and similar groups: 19,169 Total: visitors

Site: Harris Center for Conservation Education PV installation, exhibit and interpretive talks

Total visitors 2004: 500+. Breakdown: Tours: 150. Green Buildings Tour: 50. General Public 300+.

### **Leveraged Resources**

In lieu of typical incentives available in other states (NH SBC cannot be used to fund solar equipment purchases), NH MSR Partnership is focusing on developing grassroots efforts that promote education and voluntarism to reduce cost barriers associated with solar installations. Since the last update in May 2004, total value of goods, services, meeting space, program participation, labor and installed equipment equals approximately \$52,000.

### **Outreach (Activities of Plymouth Area Renewable Energy Initiative –PAREI)**

- Promoted/assisted with 4 solar installations, 2004 and 2005.
- One Solar House Party May 2004: 25 attendees
- One PAREI Solar Hot Water Workshop June 2004: 30+ attendees
- PAREI sponsored one site on Tour of Green Buildings October 2004, Squam Lakes Natural Sciences Center. 40+ attendees
- Energy Exchange – sharing of energy ideas and resources - Feb 26 2005: 26 attendees
- First information session 3/10/05: 4 attendees
- Two showings of “The End of Suburbia”, Q1 2005 : 120 attendees total
- PAREI/Plymouth State University/NH Sustainable Energy Association co-sponsored lecture by Richard Heinberg April 12 2005 on how to mitigate impacts of post-peak oil: 340 attendees
- Information session for public, April 15: 12 attendees
- Energy Exchange April 22, 2005: 37 attendees

Note: Plymouth Area Renewable Energy Initiative (PAREI) organized in early 2004 and began operating under contract with State of New Hampshire in November, 2004. This report does not reflect a complete year of fully operational achievements. The 2005-2006 report will be more representative of their impressive work!

### **New and Noteworthy Accomplishments**

PAREI has formed a partnership with the NH Weatherization Program to provide solar DHW installations for income-qualified households. PAREI will provide training for installers. Formal start: Aug 3 2005.

PAREI’s June 2005 Energy Exchange (people meet and share ideas, information, resources) had 29 participants.

PAREI’s first and second Energy Raiser (patterned after Amish barn raisings) – installation of a solar PV and a solar DHW system with associated educational presentation. This approach reduces cost barriers by training people to install, and by recruiting volunteer labor to assist in the installation. There were 10 and 27 participants respectively at each installation.

A local business person in Plymouth NH has constructed a “green” building, and has offered to serve as a mentor for others who wish to do the same.

### **Activities Underway**

See below Upcoming Events

### **Upcoming Events**

- The first PAREI/NH Weatherization Program DHW training session will be on August 3, 2005 for 12-15 trainees.
- PAREI sponsored three sites for the 2005 Green Buildings Open House (associated with National Tour of Solar Homes)
- PAREI/NH Sustainable Energy Association co-sponsored Apricus DHW installation workshop, PV 101, September 2005.

## **What We Could Use Help With**

*Installations:* The largest barrier continues to be the lack of incentives other than net metering (PV) and the local option property tax exemption. *Tracking:* The NH Department of Revenue Administration no longer collects data on exemptions granted for renewable energy installations. OEP hopes to work with Revenue Administration to encourage resumption of data collection. Only 20-25% of towns have elected to offer such exemptions, so most of the possible installations are not captured via property tax exemption records in any case.

*More funding* would a) help with grassroots solar education/installation efforts such as PAREI; and b) permit OEP to establish and publicize a web-based self-registration and reporting feature for new solar installations.

The Energy Raiser approach noted above helps to overcome at least these additional barriers:

- a) General public's lack of familiarity with the technologies involved
- b) General lack of knowledge, skills and confidence needed to purchase and install equipment.
- c) Erroneous belief that there is not enough sun in New Hampshire for solar installations to work effectively.

NH MSR Partnership is focusing on this grassroots approach as potentially the most effective means to increasing the number of roofs, barring a change in incentives in New Hampshire.

Other issues:

a) No simple, convenient way to obtain information on existing and new installations. Electric companies can provide data on net-metered PV but there is no other formal data collection mechanism. Installation information can come from utilities, plus at least two other sources, in different formats. Reconciliation to avoid duplication is cumbersome and time-consuming. A web-based self-reporting system would simplify counting installations.

b) No current in-state list of vendors and qualified installers; but PAREI and NH Sustainable Energy Association (NHSEA) are collaborating on production of such a list.

## **Progress Toward Our MSR Goal**

**Are you on target?** This is difficult to determine. However, if we now have 99 known roofs, then we must identify or install 401 additional ones in the years July 2005-2009, or 89 per year. That annual number nearly equals the total of known installations to date; thus, meeting the goal will present a worthy challenge. The electric companies have agreed to copy this office automatically when they submit to Public Utilities Commission their annual (April) reports on new grid-tied installations

**If not, why not?** In addition to the barriers cited above, reorganization and downsizing of state government in 2003 reduced staffing resources that could be dedicated to this work. Also – as noted above - there is no organized, formal, comprehensive means to learn about installations other than grid-tied PV.

**Are you ahead?** No, but we are approaching the goal more rapidly, thanks to efforts of PAREI and the replicable grassroots model they are developing.

**Are you increasing your target?** No, though we may exceed it as our ability to gather information on existing installations improves.



# Long Island Solar Roofs Initiative

## Partnership Lead Organization

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Website Address: [www.LIshines.org](http://www.LIshines.org)

## Other Partners

asterisks (\*) indicate those that have joined in the past year

Brookhaven National Laboratory	Chaleff & Rogers, Architects
Citizens Campaign for the Environment	Duke Solar Energy
East Hampton Energy Advisory Committee	Elemco Electrical Construction
Environmental Advocates of New York	Environmental Defense Fund
ETM Solar Works	FairWind Energy
Four Seasons Solar Products	Go Solar
Group for the South Fork	Heliocol*
Interstate Renewable Energy Council	KeySpan Energy
Kyocera Solar Inc.	Long Island Builders Institute
Long Island Neighborhood Network	Long Island Power Authority
LI Sierra Club Energy Committee	LI University, Southampton College,
Natural Resources Defense Council	Institute for Sustainable Development
New York Board of Fire Underwriters	New York Solar Energy Industries Association
York Power Authority	New York Solar Energy Industries Association
Pace University Energy Project	North Fork Retrofit
Renewable Energy Long Island (RELI)	Prime Energy Technologies
SEADS, Inc. (Solar Education Corporation)	Residents for a More Beautiful Port Washington
STAR Foundation	Shea Studium
Sunshine Plus Solar	Sunshine Business Development*
Suffolk County Electrical Contractors Assoc.	SUNY Farmingdale Solar Energy Center
The Town of Huntington	Sustainable Energy Alliance of LI (SEA)
	TraceEngineering

## Year of Formation

2000

## Million Solar Roofs Installation Goal

At least 10,000 commercial, residential and institutional solar roofs on Long Island by 2010

Mission Statement: The Long Island Solar Roofs Initiative (LISRI), a local partnership under the U.S. Department of Energy's Million Solar Roofs Initiative, conducts an innovative customer outreach and education program on Long Island designed to significantly raise awareness of the availability, benefits and affordability of solar power and increase the number of photovoltaic (PV) and solar thermal systems in the service territory of the Long Island Power Authority (LIPA).

### Cumulative Installations

Number of installations in calendar year 2004: 132 actual PV arrays (767.13 kW DC)

Data unavailable for SHW. We intend to survey installers to determine.

Cumulative since the Partnership's formation:

<b>Building Type</b>	<b>Actual Installations</b>	<b>Total kW DC</b>	<b>MSR equivalency factor</b>	<b>MSR roof equiv.</b>
Residential	520	2422	1	520
Commercial		173.57	2.5	69
FALA	1	1010	2.5	404
Lottery	80	44.46	1	80
Totals		3650.03		<b>1073</b>

### Solar Schools

- New York Institute of Technology
- Farmingdale State University
- Babylon High School
- Terryville Elementary
- Ross High School (Brentwood)
- Sycamore Elementary

### Leveraged Resources

LIPA has rebated over \$9,000,000 for solar electric installations.

### Outreach

Number of workshops held and kinds of audiences:

The SUNY Farmingdale Solar Energy Center has offered 11 workshops on "Residential Photovoltaic System Installation and Maintenance" to train licensed electricians, engineers and architects with participation of nearly 250 people, including close to 75 workshop participants who successfully completed a qualifying exam. Two review courses for installers planning to take the NABCEP certification exam were also conducted by the Farmingdale Solar Energy Center. In addition, LIPA & RELI sponsored 7 public solar seminars in 2005 that had 25-100 participants each (mainly homeowners).

Average number of website visitors: approx. 2000 per month to LIshines.org

Number of brochures, guides, directories, *etc.* printed and distributed: A total of approximately 5000 brochures (RELI brochures and LIPA Solar Pioneer Program brochures), 1000 Consumer Guides to Buying a Solar Electric System and 2000 PV fact sheets

Number of news articles, press releases:

8 press releases; over 16 news articles since 2004

Number of public events:

2 major events (2005 Solar Conference & 2004 Solar Tour) and numerous smaller events such as talks, tabling, fairs, etc

Estimated attendance: approx. 200 each major event

**New and Noteworthy Accomplishments**

Improved the Lishines.org web-service for anyone interested in installing solar electric panels. Lishines calculates the exact LIPA rebate and sends out automated bid requests to the qualified solar contractors of the customer's choice.

Over 100 SolarCorps volunteers (PV owners) were recruited & trained to help with outreach, many by encouragement from other SolarCorps volunteers.

Jointly with RELI & LIPA, SUNY Farmingdale Solar Energy Center hosted a successful Solar Long Island 2005 in April. The conference included renowned speakers, public workshops (including a special SolarCorps Meet & Greet), and industry display tables.

**Activities Underway**

- Improvements to Lishines.org including a new "Contact a Solar Owner" feature
- Regularly scheduled public solar seminars
- Monthly speaking engagements and display tables at public events
- Solar Tour preparation & planning

**Upcoming Events**

- Installation & Maintenance of PV systems workshop (July 18-21)
- NY SolarFest (July 23 & 24)
- Public solar seminar (July 27)
- SolarCorps training sessions (July 30 & Aug 13)
- Additional public solar seminars to be scheduled
- 2005 Solar Tour (Oct 1)

**What We Could Use Help With**

The lack of information in the service territory. Many people that might be able and willing to install solar systems are simply not aware that the technology is available, viable, and – given the current rebate incentives – relatively affordable.

Other barriers can be found within the industry (i.e. lack of adequate numbers of qualified integrators, lack of industry marketing campaigns, poor business management skills, etc.) and the lack of knowledge among town officials and building departments regarding solar systems.

We could use help with professional services to craft effective marketing messages, design print, web and other eye-catching outreach material.

**Progress Toward Our MSR Goal**

With ongoing and renewed commitment from LIPA and other major partners as well as meaningful industry support, we can meet 2010 goals.

# New York State Energy Research & Development Authority

## Partnership Lead Organization

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## Other Partners

- New York Solar Energy Industry Association
- SUNY Farmingdale
- Dr. Gay Canough
- Florida Solar Energy Center\*

## Year of Formation

1999

## Million Solar Roofs Installation Goal

500 installations by 2010. Our goals also include developing 6-9 accredited PV training programs, institutions across the state (one accredited to date), having at least one NYS certified Master Trainer (Dr. Canough is now certified), having 6-8 certified instructors across the State, and helping PV installers get certified by NABCEP.

## Cumulative Installations

In 2004, through its PV Incentive Program, NYSERDA eligible installers completed 87 PV installations totaling 366 kW (DC). Total NYSERDA incentives for these installations totaled \$2.69 million and the average system size was 4.2 kW. Real-time program status charts for the PV incentive program can be found at [www.PowerNaturally.org](http://www.PowerNaturally.org). To date, under several NYSERDA programs designed to reduce the first cost of PV installations in a wide variety of applications, 332 systems have been completed, totaling 1.611 MW (DC) and \$14.3 million in NYSERDA incentives.

## Solar Schools

To date forty-three, 2kW systems have been installed and the last seven systems (all 2kW) will be installed by this fall. Sixty lessons and online data from the schools are available on our website ([www.SchoolPowerNaturally.org](http://www.SchoolPowerNaturally.org)).

## Leveraged Resources

To date, our 332 installed PV systems (\$14.3 million in NYSERDA incentives) leveraged another \$11.45 million in co funding for a total investment of \$25.75 million in funding. This data only represents funds leveraged for actual installations. Additional funds have been leveraged for training and educational activities.

## Outreach

Since its Phase One MSR Grant and other related initiatives were completed, NYSERDA has seen the number of trained, qualified installers participating in its program jump from 20 to nearly 50. About 20 or so New York installers are certified by NABCEP and many others are pursuing certification. The number of qualified installers could easily jump to 75-90 in the next 18 months.

NYSERDA has held 20 training sessions, reaching about 776 students, at more than a dozen different locations across the State. Architects, builders, installers, contractors, electricians, utility staff, and inspectors have participated in training in topics including, but not limited to, building-integrated PV design, PV for code officials, OSHA safety, the National Electrical Code, and others. Working with the PACE Energy Project, another MSR partner, NYSERDA was the main sponsor for the two-day Bear Mountain Energy Expo which offered free technology exhibits and PV workshops to the community.

### **New and Noteworthy Accomplishments**

The New York State Energy Research and Development Authority (NYSERDA) has teamed with Clean Power Research to develop PowerClerk™ for its Power Naturally<sup>SM</sup> PV Incentive Program. PowerClerk is an Internet-based software service for government, utilities, and other organizations with clean energy programs. It processes incentive applications, generates program reports, and analyzes results. PowerClerk manages all of the information that accompanies incentive applications. It simplifies program reporting and data analysis and has enabled NYSERDA to post real-time program information its website. NYSERDA's efforts in developing PowerClerk could benefit many other NYSERDA programs and could even facilitate the integration of results from clean energy programs throughout the U.S.

### **Activities Underway**

NYSERDA has implemented many initiatives addressing several barriers to utilization of PV in New York, including: developing a qualified installer network across the State; educating consumers about PV; providing funding for PV installers and dealers to develop innovative marketing strategies; and, placing system and installer quality ahead of maximizing the number of kW installed. Upcoming initiatives include a PV Expert Speaker's bureau in conjunction with IREC, National Electric Code Training, a NABCEP review course for installers taking the NABCEP exam, etc. For every three dollars NYSERDA has spent on cash incentives for PV, another dollar has been invested in training, certification, education, and outreach. NYSERDA, NYSEIA and IREC are working on an installer internship program, using NYSERDA and MSR funds. This program will kick-off in a pilot phase in summer 2005, and continue into 2007.

### **Upcoming Events**

Kick off of PV mentor-intern program later in summer (2005).

### **What We Could Use Help With**

New York State could use assistance in developing nationally accredited PV training programs and certification of instructors, promoting the benefits of hiring a NABCEP certified installer, training for code officials and inspectors, and general public education on the costs and benefits of PV.

### **Progress Toward Our MSR Goal**

We are well on our way to exceeding our target without the benefit of using DOE equivalents for calculating the number of systems. In addition to the 332 completed systems, we have reservations or contracts in place for the installation of another 138 systems. These installations should be completed within 6-9 months. NYSERDA has just added another \$5 million in incentive funds which should, based on the current average system size and incentive, result in another 115 installations within the next 24 months. This would bring the total number of installed systems to 585 (again not using equivalents and with an average system size of 4.5 kW) by 2008.

# State of Rhode Island

## Partnership Lead Organization

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Phone Number: 401-222-3370

Fax Number: 401-222-1260

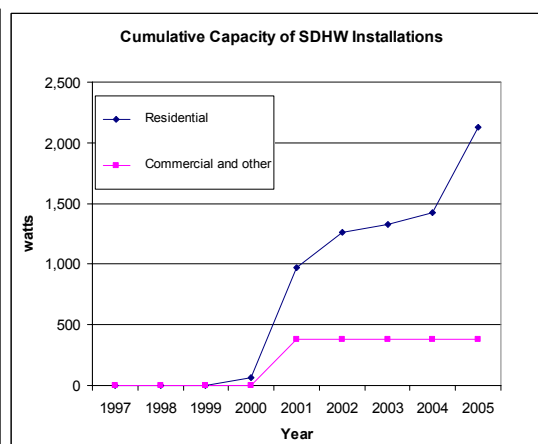
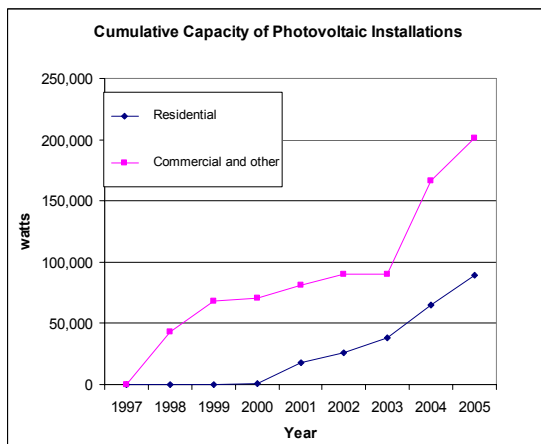
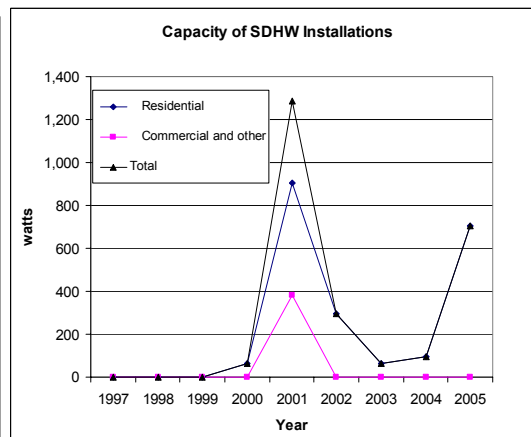
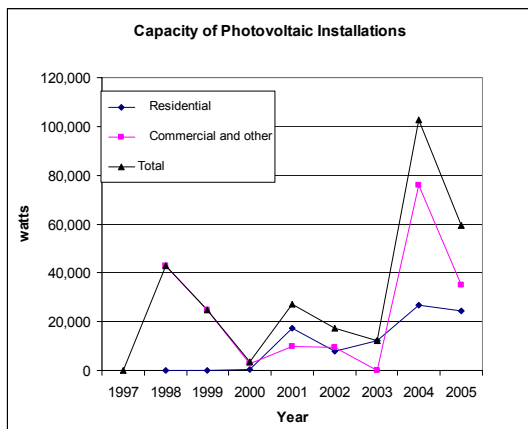
Email Address: [JaniceM@gw.doa.state.ri.us](mailto:JaniceM@gw.doa.state.ri.us)

## Year of Formation

2004

## Cumulative Installations

Technology	2004		Cumulative to 2004	
	Number	Capacity	Number	Capacity
Photovoltaic	19	102.6, kW	56	230.8, kW
SHW	1	96, square feet	27	1808, square feet



## **Solar Schools**

We are in the process of elevating the number of schools participating in the state's Solar on Schools initiative. Currently we have 10 schools or educational facilities participating in the program, and have authorized nine additional schools to receive solar electric systems and curricula within the next two years. Our goal is to have a system in each of the thirty towns/school districts in Rhode Island.

- We estimate that six distinct classes are currently exposed to solar projects & lesson plans, based mostly upon the effort of champions at two schools and resources provided by the Rhode Island State Energy Office. The number of participants is scheduled to increase dramatically within the next year.
- 25
- 7-12
- Eight.  
A workshop was conducted this spring through the Rhode Island State Energy Office with the assistance of Heliotronics, NESEA, and NEED. This is the first of a series of workshops to establish and coordinate the use of the solar electric systems in the Solar on Schools program.
- We are utilizing educational materials developed by NEED, NYSERDA, Heliotronics, and NESEA. The NESEA work is still under development and is not yet in the public domain. The NEED and NYSERDA work is in the public domain, and the Heliotronics educational software is available to anyone who uses the Heliotronics Data Acquisition System.
- The Rhode Island Renewable Energy Fund has selected the Heliotronics Data Acquisition System for transferring information on the operation of the solar electric systems. The Heliotronics system uses real time display, network access, and Internet access. Anyone with Internet access can view the operation of these systems.

## **Leveraged Resources**

The Rhode Island State MSRI partnership has made extensive use of the Rhode Island Renewable Energy Fund (RIREF), which is a SBC-derived source of funds for renewable energy technology. We estimate \$200,000 has been utilized to date, and another \$200,000 will be used in the next two years.

## **Outreach**

The Rhode Island State MSRI partnership has not been funded in the past two years, and has not been able to conduct general outreach. Instead the State has relied upon RIREF for this purpose.

However, we have undertaken very specific outreach to overcome barriers identified during previous funding cycles. A gap in the overall outreach effort has been the establishment of a qualified installer base. Our outreach efforts have been primarily directed towards the establishment of a Licensed Electrician Training Facility using NABCEP and ISP protocols.

- Three workshops for potential solar electric installers. One workshop for inspectors.
- Average number of participants: 40 per workshop
- Solar on Schools program announcement and mailer totaling 650 pieces
- One IREC MSRI article
- None
- RIREF has funded several Outreach events, primarily for Green Power marketing. While these are not under the MSRI initiative, they are Outreach efforts that are designed to educate and facilitate the use of renewable energy technology.

## **New and Noteworthy Accomplishments**

This year we passed a permanent 25% Rhode Island Renewable Energy Investment Tax Credit for MSRI eligible wind, hydro, and biomass technologies.

We also amended legislation to allow solar domestic water heating systems to receive SBC funds for the low income sector.

### **Activities Underway**

Identification of eligible low income solar water heating projects, and the development of educational / informational binders for program managers, architects, and financiers of these projects

### **Upcoming Events**

We have an aggressive application before MSRI's consideration. The events undertaken will be a direct function of funding

### **What We Could Use Help With**

The largest barriers remaining continue to be consumer education. We have found public speaking events to be an effective forum for reaching a large number of people at a relatively low cost. MSRI funding would allow us to continue with the message developed over this initiative.

Smaller issues are price related. We need to coordinate installer training, installer purchasing education, and RIREF programs if we are to develop a contractor base that can install projects costs effectively. RIREF's direction towards purchasing RECs has removed resources that could have been used for this purpose.

### **Progress Toward Our MSR Goal**

We are behind our goal. However, there are a large number of applications in process that will bring us on target. Unfortunately, the RIREF's direction towards larger, ostensibly more cost effective projects is removing funds from the projects that would count towards the MSRI goal. Funds may be restored, but at this time we can not be confident that they will materialize.



# Vermont Solar Roofs Partnership

## Partnership Lead Organization

Contact Person: David Hill, Director

Contact Organization: Renewable Energy Resource Center

Mailing Address: 255 S. Champlain St. Suite 7, Burlington, VT 05401

Phone Number: (802)658-6060 x1034

Fax Number: 802-658-1643

Email Address: [dhill@veic.org](mailto:dhill@veic.org)

Website Address: [www.erc-vt.org](http://www.erc-vt.org)

## Other Partners

Vermont Department of Public Service

Renewable Energy Vermont

Associate partners include the 16 solar system installers active in the Vermont Solar and Small Wind Incentive Program, with 2 new partners joining since October 2004.

## Year of Formation

1999

## Million Solar Roofs Installation Goal

Vermont's Solar Roofs Partnership goal is 1,000 Solar Roofs by 2010. The Vermont Solar Roofs Partnership is led by Vermont's Department of Public Service and has been administered and delivered by The Renewable Energy Resource Center (RERC), a project of the Vermont Energy Investment Corp. The RERC provides consumers with information on solar hot water and solar electric renewable energy systems. In our web site you can learn about how solar electric and hot water systems work, find information on the economic and environmental benefits of renewable energy, incentive program details, and locate dealers and advice that can help you make better choices when purchasing and installing a renewable energy system. We are also available to field phone calls and information requests via email. Additionally, the RERC participates in several renewable energy festivals, building, home show, and renewable energy conferences throughout the state and the annual solar homes tour in October.

## Cumulative Installations

As detailed in the tables on the following page, through 7/21/05, the Vermont Solar Roofs partnership has achieved 129 solar hot water systems and 278 PV system installations. Cumulatively, this represents 407 systems, 32% SHW, 68% PV. Vermont is now 40.7% toward its solar roofs goals of 1,000 systems by 2010. Average PV system size is 1.8 kW, for a total estimated installed capacity of 500 kW. Average SHW system size is 112 kBtu, for a total estimated installed capacity of 14,409 kBtu.

## Solar Schools

Burlington, VT established in 2003 a "Solar on Schools" program and plans to install seven solar systems over four years ([www.burlingtonelectric.com/solarpg.htm](http://www.burlingtonelectric.com/solarpg.htm)) To date, we are aware of two schools that have solar systems currently installed. These two schools are Champlain Elementary School, student population 300, and Burlington High School, student population, 500. PV systems in each school are 1 kW in size, have real-time displays at the school entrance lobby, and have been incorporated into part of the science curriculum.

<http://www.burlingtonelectric.com/PhotoGallery/SolarSchools.htm>

## Solar Hot Water Installations to Date-7/21/05

<b>Solar Hot Water</b>		<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>
Residential		10	6	12	9	8	47	30				
Commercial		2	2	2	1							
Pool												
State												
Federal												
Other												
<b>Total SHW Annual</b>		<b>12</b>	<b>8</b>	<b>14</b>	<b>10</b>	<b>8</b>	<b>47</b>	<b>30</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total SHW Cumulative</b>		<b>12</b>	<b>20</b>	<b>34</b>	<b>44</b>	<b>52</b>	<b>99</b>	<b>129</b>	<b>129</b>	<b>129</b>	<b>129</b>	<b>129</b>

<b>Photovoltaic</b>		<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>
Residential												
	Grid Tied	9	16	14	12	17	87	16				
	Off-Grid	8	8	10	2		45	17				
Commercial		0	4	1	0	7						
Solar on Schools		1	2				1	1				
State												
Federal												
Other												
<b>Total PV Annual</b>		<b>18</b>	<b>30</b>	<b>25</b>	<b>14</b>	<b>24</b>	<b>133</b>	<b>34</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total PV Cumulative</b>		<b>18</b>	<b>48</b>	<b>73</b>	<b>87</b>	<b>111</b>	<b>244</b>	<b>278</b>	<b>278</b>	<b>278</b>	<b>278</b>	<b>278</b>

## Total Solar Roofs

Annual		30	38	39	24	32	180	64	0	0	0	0
Cumulative		30	68	107	131	163	343	407	407	407	407	407

Note: Estimates for 2005 are through 7/21/05

Note: The count estimates are based on the original 1 to 1 roof basis. In the future, we will adopt the MSR roof equivalent system as we update and revise our database tracking system.

## Leveraged Resources

The Vermont Department of Public Service through allocation of Petroleum Violation Escrow Funds dedicated \$581,000 in start-up funding for the establishment of the Vermont Solar and Small Wind Incentive program in October, 2003. Supplemental incentive program funding was contributed by two Vermont electric utilities, Central Vermont Public Service and Green Mountain Power, in the amount of \$380,000 in April, 2004.

In early July, 2005 these companies also filed proposals with the Vermont Public Service Board making another contribution to the incentive program of approximately \$320,000. The utility contributions towards the incentive program are in response to a Public Service Board directive to use insurance escrow funds created by the sale of the Vermont Yankee Nuclear Power Plant to support further development of renewable energy.

Additional resources are also leveraged every time a consumer invests their personal funds in a solar system for their residential or business application. We estimate approximately \$2.2 million in private investment will be leveraged from the first \$961,000 of the incentive program. The incentive program, which provided roughly 1/3

of the installed system costs during the first round of funding, has therefore been successful in generating market activity with relatively low incentive payments. In the next round of the incentive program, we expect incentive levels to drop by 20%, and to cover roughly 25% of installed costs.

### **Outreach**

- Conducted 8 site verification visits for installations participating in the Solar and Small Wind Incentive Program, Fall 2004.
- Presentation on the Vermont Solar and Small Wind Incentive Program at Renewable Energy Vermont's 3<sup>rd</sup> Annual Power for a New Economy Conference. Helped coordinate panel discussion on solar topics, including activity in other states and importance of incentive program to the growth of Vermont based solar businesses. Total conference registration again exceeded 300 people. September, 2004.
- Vermont hosted the New England Regional Solar Roof Partnerships Meeting. September, 2004. This meeting provided an excellent venue for partners to share information, discuss challenges, and learn about new strategies to promote solar in their states. September, 2004.
- National Tour of Green Buildings was promoted by the RERC through newspaper announcements and flyers distributed locally. RERC project manager Toben Galvin, co-lead a tour with Kirk Herander, a local solar installer and visited three sites with a group of 15 people, including two Vermont legislators. October, 2004
- Presentations to three legislative committees on accomplishments of solar and small wind incentive program, and need for stable and sustained incentive funding to help continue industry growth.
- Booth presentation by RERC at Efficiency Vermont's Better Buildings by Design Annual Conference. Total attendance exceeded 900 people. February, 2005.
- RERC booth presentation at Solarfest Renewable Energy Festival, Tinmouth, VT. Total festival attendance exceeded 3,000. July, 2005.
- RERC Hotline – The hotline continued to respond to consumer inquiries, many related to the Vermont Solar and Small Wind Incentive Program. Calls to the RERC hotline are now routed through VEIC's consumer support telephone chain, which provides improved call answering and response times.
- Participate in Solar World Conference in Orlando, presenting paper on market responses to PV program incentive offerings, and Annual Million Solar Roofs Partnership meeting in Washington, D.C.

### **New and Noteworthy Accomplishments**

- Redesigning the Vermont Solar and Small Wind Incentive Program in anticipation of a re-opening of the fund sometime in July-August, 2005.
- Launching the "Solar and Small Wind Volunteer Corps".

### **Activities Underway**

Website updates and consumer education and outreach events to the public about the Solar and Small Wind Incentive Program. Additionally, the Vermont Solar Roofs partnership regularly convenes meetings of the solar installers in the state to address questions and promote opportunities for greater installation of systems.

### **Upcoming Events**

- Official re-opening of the Vermont Solar and Small Wind Incentive Program
- 2005 Green Buildings Open House Tour, October, 2005
- 4<sup>th</sup> Annual Renewable Energy Vermont Conference, September 2005
- Efficiency Vermont's Better Buildings By Design Conference, February, 2005
- Vermont Home Show, March 2005

### **What We Could Use Help With**

We could use financial support to incorporate a solar hot water analysis option into the Clean Power Estimator available on our website.

### **Progress Toward Our MSR Goal**

Vermont is now 41% toward obtaining our goal of 1,000 solar roofs by 2010.

# Southeast Region

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## **Regional Office Report**

### **Alabama**

Alabama MSR Partnership

### **Arkansas**

Little Rock Million Solar Roofs Partnership

### **Florida**

Florida SunSmart MSR Partnership

### **Georgia**

Georgia MSR Partnership

### **Kentucky**

Kentucky Solar Partnership

### **Mississippi**

Mississippi Development Authority

### **North Carolina**

North Carolina MSR Partnership

### **South Carolina**

South Carolina MSR Partnership Initiative

### **Tennessee**

Tennessee MSR Initiative



# The Solar Year in Review For the Southeast Region

*Prepared by the Southeast Regional Office*

## I. Activities, Advances & Accomplishments of Note

### ● General Comments

While installations continue to increase throughout the Southeast, cooperation among some of the Southeast MSR partnerships is now a reality as borne out by several examples. The Partnerships share a free website in as means to exchange ideas on various issues of relevance see: <http://groups.yahoo.com/group/SoutheastMSR/>. A current undertaking led by the Florida Partnership is coordinating marketing materials that feature recent southeast installations. The Partnerships, led by Georgia are planning a regional NABCEP training session for early calendar year 2006. Several of the Southeast MSR Partnerships have shown a continuing interest in low grade solar hot water applications as evidenced by the nature of recent projects funded under the MSR program. The North Carolina MSR Partnership developed a highly utilitarian online solar and renewable energy installation tracking program (see <http://www.ncsc.ncsu.edu/information/resources/renewable/>) that should have widespread transferability to other MSR partnerships.

### ● Regional Peer-to-Peer Exchange(s)

The Partnerships are anticipating a Fall meeting in Atlanta: Strategic Planning to follow-up on Regional Cooperation in outreach materials, solar water heating in context of green power and financing/incentive ideas. The next meeting will likely be a winter meeting focusing on the NABCEP training in February in Atlanta.

## 2004 Grants Review

1. North Carolina Solar Center, “Enabling Local Government Solar Initiatives in North Carolina” was awarded \$48, 628 – to create a comprehensive resource toolbox for implementing solar technologies through outreach to at least 8 local communities.
2. Kentucky –Appalachia Science for the Public Interest – “Translating Kentucky’s New Renewable Energy Incentives Into Solar Installations through Promotions and Education” was awarded \$48,740 to increase demand for solar hot water heating through barrier removal and help install at least 50 solar hot water systems in low income residences leveraging \$217, 411.
3. Georgia’s Southface Energy Institute, “Georgia Million Solar Roofs – Transforming the Market” was awarded \$48,952 to demonstrate “market ready” solar PV installations through actual installations to educate design and construction personnel and provide outreach to consumers leveraging \$117,500.
4. Florida Solar Energy Center – “Integrating Solar into Efficient Affordable Housing and Rural Utility Applications” was awarded \$49,488 to develop educational tools that depict relevant solar energy applications in rural settings, provide system performance data to utilities, governments and not for profit housing corporations, and provide Florida MSR Partners with associated learning tools for rural solar hot water applications.

## II. Looking Towards the Horizon

### ● General Comments

As Partnerships mature and new ones appear, a relative seamless willingness to work together regionally is evident now more than ever. While each Partnership in

states with ongoing green power and related activities play a major role in those exigent venues, the challenges while seemingly unique, are quite similar. The newer partnerships are not hesitant in reaching out to the others in seeking advice resulting in a healthy exchange of information that indeed even serves well the Regional Coordinator.

No doubt there will continue to be a dearth of extant renewable energy incentives in the near future thus, the dramatic California or New Jersey type metrics are not anticipated in any of our Partnership geographical areas. However, a steady trending toward the MSR goals is anticipated eventuating in a healthy, yet nascent solar market in certain areas. Some Partnerships are exploring bold, new leveraging mechanisms, absent state electricity restructuring fiat, that kick-jump the market place.

- **Focus Areas & Key Challenges**  
It's safe to conclude the Partnerships concede that low grade residential water heating can possibly play a significant role in jump starting the regional solar market place. To that end, an aggressive effort is underway in exploring the connection between that technology and electric power avoidance. No Resource Portfolio Standards legislation was proffered this year to our knowledge. The Partnerships, no doubt, continue to request technical assistance from the MSR program in

creating incentive packages at the state level. It would be prudent for the MSR program to consider a Technical Assistance mechanism for active MSR partnerships who will no longer qualify for funding under a new grant solicitation arrangement. While oil price increases affect all of us world wide, the incremental effect may serve to influence decision makers even in our low energy cost states. Our strong MSR partnerships will continue their efforts to grow the solar industries, despite any looming setbacks. As has been stated, *"...The path to Nirvana is tricky and deep and you will never get there if you travel only on sunny days"...*

- **Upcoming Events –**
  1. Fall P2P meeting – Atlanta GA
  2. Winter NABCEP Training Meeting
  3. Southeast Energy August 26<sup>th</sup> - 28<sup>th</sup>, 2005Expo, Western NC Agricultural Center

### **III. Million Solar Roofs Regional Coordinator Contact Information**

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Atlanta GA 30303  
404/562-0564  
404/562-0538  
[Dwight.bailey@ee.doe.gov](mailto:Dwight.bailey@ee.doe.gov)  
<http://www.eere.energy.gov/regions/southeast/>

# Alabama Million Solar Roofs Partnership

## Partnership Lead Organization

Contact Person: William H. Teasley, VP  
Development  
Contact Organization: Brownfield Institute  
Mailing Address: 1205 Front Street / Anniston,  
Alabama 36201  
Phone Number: 404-610-5838  
Fax Number: 404-622-5326  
Email Address: [w.teasley@att.net](mailto:w.teasley@att.net)

## Other Partners

None at this time

## Year of Formation

2004

## Million Solar Roofs Installation Goal

500

## Mission Statement:

To increase the awareness of solar in Alabama,  
while expanding the number of installations.

## Cumulative Installations

- Building database of installations eligible for MSRP
- Conducting interviews and surveys to identify current number of eligible systems. Should have final number in December 2005.

## Solar Schools

0 – One planned to come on-line in Spanish Fort, Alabama in 2006.

## Leveraged Resources

None to this date

## Outreach

- 2 workshops for government and enthusiasts, 30 in attendance
- 60 brochures, guides, directories, etc. printed
- 2 news articles or press releases

## New and Noteworthy Accomplishments

Alabama@Work on PBS story on solar in Alabama. Attended workshop in Florence, Alabama in which Dwight Bailey (US DOE), Jessica Dent (ADECA) and William Teasley (Brownfield Institute) were interviewed.

## Activities Underway

Inventorying solar installations in Alabama.

## Upcoming Events

Fall workshop at Auburn University and 2006 Southern Sun Workshop in Montgomery

## What We Could Use Help With

Not much state support for partnership exists.

## Progress Toward Our MSR Goal

Just getting started.



# Little Rock Million Solar Roofs Partnership

## Partnership Lead Organization

Contact Person: John C. Barr, Special Projects Analyst

Contact Organization: Little Rock Public Works Department

Mailing Address: 701 W. Markham St., Little Rock, AR 72201

Phone Number: 501-371-4646

Fax Number: 501-371-4843

Email Address: [jbarr@littlerock.org](mailto:jbarr@littlerock.org)

Website Address:

<http://www.arkansasrenewableenergy.org/solar/solar.html>

## Year of Formation

2000

## Cumulative Installations

Not being tracked at this time.

## Solar Schools

No Solar Schools program at this time.

## Outreach

Website:

<http://www.arkansasrenewableenergy.org/solar/solar.html>

Model of solar home on display with energy exhibit at Museum of Discovery.

## What We Could Use Help With

Without specific incentives available in Arkansas, and given the relatively low cost of energy, there is minimal impetus to adopt energy saving uses such as solar. Possibly the new energy bill will help some. We do have net metering, but the investment is still substantial.

It seems to me that many of the MSR partnerships develop very similar educational and informational brochures, all customized to the circumstances within their areas. Possibly this should be coordinated among all partnerships, both to minimize duplicative efforts and to maximize limited fiscal resources. And, as recognition of general energy conservation, most of this information should be available over the Internet and limited in printed form.

I also would like to develop a standardized series of seminars/workshops that could be put on within a single conference within a concept I have termed "Solar University." The "Solar University" could then travel to various sites to provide general education on a periodic basis. Speakers and instructors would be members from the various partnerships, selected to talk within their specialty. The seminars/workshops would address the various aspects of solar energy and its implementation.

# Florida SunSmart MSR Partnership

## Partnership Lead Organization

Contact Person: Jennifer Szaro, Senior Energy Analyst

Contact Organization: Florida Solar Energy Center

Mailing Address: 1679 Clearlake Road, Cocoa, FL, 32922

Phone Number: (321) 638-1427

Fax Number: (321) 638-1010

Email Address: [jszaro@fsec.ucf.edu](mailto:jszaro@fsec.ucf.edu)

Website Address: [www.sunsmart.org](http://www.sunsmart.org), [www.fsec.ucf.edu/pvt/projects/msr](http://www.fsec.ucf.edu/pvt/projects/msr)

## Other Partners

Florida Energy Office/Florida Department of  
Environmental Protection

Florida Municipal Electric Association

Florida Solar Energy Industries Association

Florida Solar Energy Research and Education  
Foundation

Progress Energy

FPL

TECO

Gulf Power

JEA

Gainesville Regional Utilities

Orlando Utilities Commission

City of Tallahassee

Lakeland Electric

Ocala Electric Utility

City of Key West

Florida Institute of Technology

Florida Gulf Coast University

FSU Center for Advanced Power Systems

FAMU

FIT

Florida Atlantic University

Westside Technical School

City of Ocoee

Jacksonville JATC

Daytona JATC

Orlando JATC

Gainesville JATC

Energy Structures and Systems

Solar Energy Inc.

Environmental Protection Commission of  
Hillsborough County

IFAS Energy Extension

\*Florida Electric Coop Assoc.

\*Olsen Electric

\*Spire Solar, Florida

## Year of Formation

1999

## Million Solar Roofs Installation Goal

Our goal is to install 20,000 PV systems and 140,000 solar hot water systems by 2010. Our mission statement is: To support the growth of renewable energy and energy conservation activities in Florida that builds on individual partnership capabilities and reduces duplication of effort and transaction costs for individual partners.

## Cumulative Installations

Source of Data	System Type	Year Installed	Number Installed
Industry Estimates	Solar Pool Heating	1998	14,000
Industry Estimates	Solar Water Heating	1998	240
Industry Estimates	Solar Pool Heating	1999	15,000
Industry Estimates	Solar Water Heating	1999	200
Industry Estimates	Solar Pool Heating	2000	15,000
Lakeland Electric	Solar Water Heating	2000	29
Industry Estimates	Solar Water Heating	2000	200
Industry Estimates	Solar Pool Heating	2001	15,000
JEA-Owned Solar Program	Solar Pool Heating	2001	1
SunBuilt	Solar Water Heating	2001	70
Industry Estimates	Solar Water Heating	2001	130
Industry Estimates	Solar Pool Heating	2002	15,000
SunBuilt	Solar Water Heating	2002	120
Industry Estimates	Solar Water Heating	2002	70
JEA-Owned Solar Program	Solar Water Heating	2002	1
SunSmart Schools Program	Photovoltaics	2003	14
JEA-Owned Solar Program	Photovoltaics	2003	3
JEA Solar Incentive Program	Solar Pool Heating	2003	452
Industry Estimates	Solar Pool Heating	2003	14,992
Front Porch Sunshine Program	Solar Water Heating	2003	1
JEA-Owned Solar Program	Solar Water Heating	2003	2
Industry Estimates	Solar Water Heating	2003	370
SunSmart Schools Program	Photovoltaics	2004	15
JEA Solar Incentive Program	Photovoltaics	2004	6
Other Recorded Installations	Photovoltaics	2004	2
JEA Solar Incentive Program	Solar Pool Heating	2004	120
Industry Estimates	Solar Pool Heating	2004	17,240
Front Porch Sunshine Program	Solar Water Heating	2004	49
JEA Solar Incentive Program	Solar Water Heating	2004	113
Industry Estimates	Solar Water Heating	2004	380
SunSmart Schools Program	Photovoltaics	2005	1
JEA Solar Incentive Program	Photovoltaics	2005	0
JEA Solar Incentive Program	Solar Pool Heating	2005	0
Front Porch Sunshine Program	Solar Water Heating	2005	2
JEA Solar Incentive Program	Solar Water Heating	2005	31
SWAP (FSEC)	Solar Water Heating	1997-1998*	801
FSEC PV Buildings/PV Rebate	Photovoltaic	1999-2002*	119
JEA-Owned Solar Program	Photovoltaic	2001-2002	32
JEA Solar Incentive Program	Photovoltaics	2002-2004	14
JEA Solar Incentive Program	Solar Water Heating	2002-2004	130
Lakeland Electric	Solar Water Heating	2002-3	28
<b>Totals</b>			<b>109,978</b>

Totals by Year	
1997-1998	15,041
1999	15,200
2000	15,229
2001	15,201
2002	15,342
2003	15,862
2004	18,069
2005	34
<b>Total</b>	<b>109,978</b>

### Solar Schools

Number of solar schools in Florida: 77

Number of school districts with solar in Florida: 17

- How many classes per year are exposed to solar projects and lesson plans?
  - At least 29 of the solar school installations are equipped with solar lesson plans and projects with at least 25 more expected in the next year.
- Average number of students per class
  - 30
- Grade levels
  - K-12, vocational and university level
- Number of teachers trained
  - At least 120
- Types of curriculum-based tools/resources you have developed
  - We have the energywhiz.com website as well as energy curricula for each age group and these are available to all MSR partners.
  - We have conducted teacher professional development workshops for 62 schools that includes guidance on using the tools and resources we have developed.
- Real-time classroom displays of solar system output, or provision for some other student-accessible monitoring? Links to other schools?
  - We have 31 schools currently being monitored from our website at <http://dbase.fsec.ucf.edu/pls/pv/list> and additional sites are available with data at: [http://dbase.fsec.ucf.edu/pls/pv/pv\\_systems](http://dbase.fsec.ucf.edu/pls/pv/pv_systems)

### Leveraged Resources

- Florida Energy Office: \$1,500,000 (SunSmart Schools, SunBuilt, Front Porch Sunshine)
- JEA: \$500,000 solar budget for FY2004

## **Outreach**

Number of workshops held and kinds of audiences (*e.g.*, homeowners, builders, inspectors, etc.):

- This year we held 4 PV installation training workshops each with about 10-20 attendees.
- We hosted the SE Green Energy Summit with nearly 100 participants from industry, academic and utility backgrounds
- We held two Farm Bill workshops with a total of 49 attendees, mostly farmers and ranchers

Average number of website visitors:

- We receive approximately 70 hits per month on our SunSmart.org website
- We received a total of 50,519 hits since August 2004 on the energywhiz.com website

Number of brochures, guides, directories, *etc.* printed and distributed:

- We have distributed at least 2,000 brochures and at least 150 workshop manuals this year

Number of news articles, press releases:

- We had 28 press releases and news articles released this year

## **New and Noteworthy Accomplishments**

- Check out our MSR Yahoo Groups page at: <http://groups.yahoo.com/group/SoutheastMSR/>
- We have updated the [www.sunsmart.org](http://www.sunsmart.org) site to include the workshop materials from our Farm Bill workshops including a sample application template for PV systems.
- We recently completed a commercial solar tool kit that will be made available from our website and can be customized.
- The Southeast Green Energy Summit held in Orlando, FL on May 2-4 was a great success.

## **Activities Underway**

- SunSmart Schools program (PV rebates for schools)
- Sunbuilt (water heating for model homes)
- Front Porch Sunshine (water heating for low income housing retrofits)

## **Upcoming Events**

Check the FSEC website for a full list of solar and efficiency training courses

## **What we could use help with**

Our largest barrier: minimal state-funded financial incentives; no policies to sustain funding for solar programs; interconnection issues for PV systems larger than 10 KW

## **Progress toward Our MSR Goal**

We are exceeding our goals for solar water and pool heating, but due to lack of financial incentives in the state, are slowly crawling toward our PV goals.

# Georgia Million Solar Roofs Partnership

## **Partnership Lead Organization**

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Contact Organization: Southface  
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Fax Number: 404-872-5009  
Email Address: [laura@southface.org](mailto:laura@southface.org)  
Website Address: [www.southface.org](http://www.southface.org)

## **Year of Formation**

1999

## **Million Solar Roofs Installation Goal**

Georgia Million Solar Roofs Partnership promotes the installation of 500 solar systems in Georgia by 2010, through education, research, advocacy and technical assistance.

## **Cumulative Installations**

We have had a very difficult time collecting installation information from our solar business owners, and often we find the information they have given us is inaccurate. When asking the solar business owners why this is, they have no explanation. However, we have not lost hope and continue to communicate with our solar business owners, some weekly, others monthly.

We are trying to increase their knowledge of the amount of benefits they are receiving from the Million Solar Roofs Initiative. For example, we have begun posting pictures of recent installations along with the installing company's name on our website, and writing articles for local and national newsletters about the recent installations in our area – always mentioning the solar companies involved with the installations to encourage more installations around the state thereby creating more business for the solar companies.

We have also been successful in getting TV coverage for several of the companies and have decided to hold training for the solar companies to become better installers. We also consistently hold events, like solar home tours and open houses, for our solar business owners to interact with interested consumers. Our hope is that with our increased efforts, our relationships with the solar business owners will continue to strengthen. Fortunately we have seen some progress and have been able to get some accurate numbers from several solar business owners, as listed below.

## Cumulative Installations

<b>Year Installed</b> (1999-2005)	<b>Type of Technology</b> (PV, DHW, Pool)	<b>Type of Installation</b> (grid intertie, battery stored, mixed; fixed, tracking; passive, active; direct, indirect)	<b>Size of Installation</b> (kW, btu, or SF)
2001	PV	grid connected	3.5kW
2004	PV		1.9kW
2004	PV	grid connected	2kW
2005	PV	grid connected	3.0 kW
2005	PV	grid connected with passive tracker	1.5 kW
2005	PV	grid connected	1.5kW
2005	PV	grid connected with passive tracker	1.5 kW
2005	PV	grid connected	1.4 kW
2005	PV	grid connected with battery back-up	1kW
	PV	grid connected	2.4kW
	PV	grid connected	2.9kW
	PV	grid connected	2.9kW
	PV	grid connected, pole mounted	1.5kW
	PV	grid connected, pole mounted	1.8kW
2005	DHW	active indirect	60,000 BTU
	DHW		two 4'x8' collectors
	DHW	closed loop	one 3'x7' collector

Other installation information we have received from installers, but 1) are not confident is 100% accurate or 2) are not sure as to the size of installations:

The below installations are grouped together by company.

PV:

2004 – 10 installations, 2000-2003 – 30 installations

2004 – 27 installations, 2000-2003 – 60 installations

2004 – 3-4 installations

Solar Water heaters:

1999 – 2004 – 10-15 commercial and residential installations

2004 – 19 installations, 2000-2003 – 60 installations

Solar pool heaters:

2004 – 192 installations, 2000-2003 – 600 installations

Based on the above information, if we needed to give what we felt would be an accurate number of installations in Georgia since our partnership began in 1999 (assuming we would error on the low side), we would say about 330 systems have been installed that would meet MSR standards for minimum size requirements.

## Solar Schools

There are 2 K-12 schools that currently have PV systems, one university with solar power systems, and 16 schools that will have PV systems soon (6 of those systems will be installed by Dec. 2005, the other 10 should be installed next year). We were only able to collect information from one of the K-12 schools and the on-line data from the university.

- How many classes per year are exposed to solar projects and lesson plans? No response
- Average number of students per class – 15/ class (150 total)
- Grade levels 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> grades
- Number of teachers trained - no response
- Types of curriculum-based tools/resources you have developed – graphing for 8<sup>th</sup> grade
  - Are they being shared with other MSR partners? No but they are being shared with other schools (the 16 new schools will be using curriculum developed by the FL Solar Energy Center)
- Real-time classroom displays of solar system output, or provision for some other student-accessible monitoring? Links to other schools?

<http://www.ece.gatech.edu/research/UCEP/PVSystems/gtacpv.htm>

### **Leveraged Resources**

We have received match funds from several groups including:

- United State Green Building Council – Atlanta Chapter: to conduct commercial workshops on solar technologies reaching over 211 people this year
- EarthCraft House: to conduct residential workshops on solar technologies and solar home tours and open houses reaching over 632 people this year
- Southface – PV panels to be used as part of a demonstration for commercial solar technologies
- Local Solar Businesses – many hours of labor educating consumers in classroom settings
- Jackson EMC – time to organize solar installations and help purchase parts and pieces for 16 local schools

### **Outreach**

- Number of workshops held and kinds of audiences (*e.g.*, homeowners, builders, inspectors, etc.) 18 workshops so far in 2005, with wide range of audiences including: builders, architects, engineers, government officials, code inspectors, contractors, educators
  - Average number of participants – 35-50 people
- Average number of website visitors over 45,825 people
- Number of brochures, guides, directories, *etc.* printed and distributed – over 5,000
- Number of news articles, press releases - over 20
- Number of public events – over 20
  - Estimated attendance – over 1,000 people

### **New and Noteworthy Accomplishments**

- Southern Living Idea House at Glenwood Park – grid connected PV system, house to be toured by 30,000+ people and magazines featuring articles on house to be read by many
- 6 PV systems on local schools
- Continual enhancement to on-line Solar Road Map for Consumers
- 4 solar homes tours
- Solar tours for national conference
- Directly assisted over 50 local consumers, builders and architects with specific information on their projects pertaining to solar technologies

### **Activities Underway**

- PV installations in schools and educating teachers on integrating those systems into current curriculum
- Case study on school installations and teacher follow-up
- Tours of Southern Living idea House (open 5 days/wk)
- Case study on decommissioning PV panels and installing them on new construction



- Case study on Zero Energy Homes
- Organizing NABCEP training for local installers
- Workshops for design and construction professionals on residential and commercial applications
- Assisting local organizations with solar programs for schools

**Upcoming Events**

- Ongoing conference calls with regional partnerships
- Solar tours for another national conference
- Teacher workshops

**What We Could Use Help With**

- Incentives for installations in our state
- Communication with solar business owners – definitely getting better but not at an overnight type of speed

**Progress Toward Our MSR Goal**

We are on target and progressing steadily

# Kentucky Solar Partnership

## Partnership Lead Organization:

Contact Person: Andy McDonald, Co-coordinator  
Contact Organization: Kentucky Solar Partnership  
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Website Address: [www.kysolar.org](http://www.kysolar.org)  
[www.greenprofessionals.org/ky](http://www.greenprofessionals.org/ky)

## Other Partners:

KSP does not function as a membership organization with formal “partners.” However, we do work closely with the following organizations and individuals towards meeting our goals:

- Berea College, Sustainability and Environmental Studies Program
- Mountain Association for Community Economic Development
- KY Office of Energy Policy
- KY NEED Project\*
- Institute for the Environment and Sustainable Development, University of Louisville\*
- Kentuckians for the Commonwealth
- Sierra Club, Bluegrass and Cumberland Chapters
- John F. Robbins, CEM\*
- Watrous Associates Architects\*
- Rodney Wright, Architect\*
- Lexington-Fayette Urban County Government\*
- Tracy Farmer Center at the University of Kentucky\*
- North Carolina Solar Center\*
- Wilderness Volunteers\*
- Sunbelievable Services

\* joined in the past year

## Year of Formation:

2001

## Million Solar Roofs Installation Goal

510 systems

The Kentucky Solar Partnership’s goals are to:

- (1) Determine and break down barriers to the growth in number of solar installations in our state;
- (2) Generate informative resource materials;
- (3) Educate community and students on the benefits of solar energy use;
- (4) Demonstrate with appropriate, safe, code approved solar installations.

## Cumulative Installations

Installations in 2004

- PV – 4 systems, or 3,055 watts total
- SWH – 4 systems, or 200 square feet total
- Equivalent roofs – 7

Cumulative Installations since Inception of KY Solar Partnership in 1999

- Total installed capacity, PV: ---  
-- 101,722 Watts
- Total number of PV systems: ---  
-- 38
- Total number of SWH systems: 6,  
or 432 s.f.
- Total “Solar Roofs” equivalents: 50

## Solar Schools

Nine schools in Kentucky have solar energy systems that we are aware of. These systems were installed through the efforts of the local districts with the support of either the Kentucky NEED Project, or American Electric Power. KSP has not been directly involved with these installations or the educational programs associated with them.

Kentucky NEED provides energy education to schools around the state, which includes renewables, so the number of students exposed to solar energy concepts and technologies exceeds those of the schools that actually have active solar systems. Because we have not been directly involved in these projects, we do not have specific answers for the following questions.

## Leveraged Resources

In 2005 KSP created a loan fund for solar water heaters. The Mountain Association for Community Economic Development is providing the capital for the loan fund. \$150,000 is available; two loans have been approved to-date (at a value of about \$3,000 each).

KSP was a primary organizer of the Bluegrass Energy Expo 2004. KSP's participation helped enable the event organizer, Appalachia – Science in the Public Interest, to achieve its budget of approximately \$70,000.

In 2005 KSP entered a partnership with the Institute for the Environment and Sustainable Development (IESD) to promote the use of solar energy in Kentucky. This 3 year project has a budget of \$1.2 million. In the first year of the project, of the \$400,000 to be expended by the IESD, \$31,000 will flow through KSP for our role in the project.

### **Outreach**

- 19 workshops, audiences including homeowners, contractors, engineers, public officials, and students. Average number of participants= 25
- Data not available on website hits, (we have just added a statistical counter to our website). 30 professionals registered on our online directory, the Kentucky Sun Pages, [www.greenprofessionals.org/ky](http://www.greenprofessionals.org/ky)
- *The Kentucky Solar Energy Guide*, 114 pgs. – 600 printed, 130 distributed to-date, numerous copies downloaded
- *Solar Water Heater Loan Brochure*- 300 printed and being distributed
- Bluegrass Energy Expo 2004 Program- 1000+ copies distributed
- Broadcast program on solar energy on Mountain Voices, a 1 hour radio program in Eastern KY
- Media campaign for Bluegrass Energy Expo 2004 reached hundreds of thousands of people in central and eastern KY, according to Jordan-Chiles, Inc.
- 12 public events, estimated cumulative 10,000 in attendance

### **New and Noteworthy Accomplishments**

- KSP was instrumental in the passage of a statewide net-metering law in Kentucky in 2004

- KSP installed first grid-intertied, net metered PV system in KY
- Published *The Kentucky Solar Energy Guide* in 2005
- Established the Kentucky Sun Pages, an online directory of renewable energy and green building professionals, 2004
- Created first low-interest loan program in KY to support installation of solar thermal systems
- Built a demonstration electric car powered by grid-intertied PV system
- Organized a solar water heater installer training for contractors, July 2005

### **Activities Underway**

- Marketing solar water heater loan program in eastern Kentucky
- Training solar water heater installers
- Distributing *The Kentucky Solar Energy Guide* at outlets around the state
- Maintaining and developing 2 websites
- Educating public, contractors, and code officials about net-metering and PV systems
- Organizing the Bluegrass Energy Expo 2005
- Developing data-base of professionals & businesses working with renewable energy and green building in KY
- Expanding outreach about solar water heating to schools and commercial users
- Developing partnership with Institute for the Environment and Sustainable Development at UofL to develop demonstration solar projects and promote solar energy

**Upcoming Events**

- Bluegrass Energy Expo 2005, Sep. 24-25-2005
- National Tour of Solar Buildings, Oct. 1, 2005
- Solar Water Heater Installer Training, Fall or Winter 2005 in Louisville, KY
- Net metering workshop for contractors and code officials, western KY, Winter 2005
- PV installation workshop, Rockcastle County, KY, October 2005

**What We Could Use Help With**

Kentucky's electricity rates are among the lowest in the nation. This makes it hard for many people to accept the high up-front cost of solar technology.

So, funds to provide financial incentives would provide a great boost. We also have a shortage of trained and experienced installation contractors. We are working on both issues.

Appraisers in KY do not recognize the value that a solar system adds to a home. If they did, this would provide a further financial incentive.

Our net-metering law directs each utility to design its own rules concerning grid interconnection. In some (perhaps many) cases, utilities have created rules that present barriers to the customer, rather than facilitating the process.

**Progress Toward Our MSR Goal**

We believe we are on target. With our loan program and the rising increase of interest in solar energy that we see in the public, we expect to reach our target, possibly sooner than 2010.

# Mississippi Development Authority

## Partnership Lead Organization

Contact Person: Jackie McKee, Jr., Environmental Scientist/Energy

Contact Organization: MDA-ED

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Jackson, MS 39205-0849

Phone Number: (601) 359-6600

Email Address: [jmckee@mississippi.org](mailto:jmckee@mississippi.org)

Website Address: [www.mississippi.org](http://www.mississippi.org)

## Year of Formation

2002

## Million Solar Roofs Installation Goal

MDA-ED has committed to installing 500 solar roofs by 2010 by penetrating other potential markets.

To achieve this mission MDA-ED will:

- Provide technical assistance to organizations interested in manufacturing and distributing solar equipment;
- Coordinate the efforts of the public, private and non-profit sectors;
- Provide additional financial assistance through non-MSR sources to acquire hardware; and
- Develop marketing and outreach tools and strategies.

## Cumulative Installations

- Hazelhurst, 4- 40gal Solar Thermal
- Duckhill, 5- 80 gal STH
- Montessori, 11- 50-80 gal STH
- New Deal, 1-180 gal STH
- City of Coahoma, 2- 80 gal STH
- New Life, 2- 80 gal STH
- Palms Generating2, 4-60kW Photovoltaic (PV)
- Mississippi Agricultural Museum, 1-40 GAL STH

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**Total Installs 50**

## Solar Schools

We have not installed any solar applications on a school, however, contact has been made exploring an opportunity to incorporate solar into the plans for a newly built school. Not only will this school demonstrate solar, but also the entire school will be a "High Performance School."

## Leveraged Resources

- MDA-Community Service Division, \$200,00, used to install solar thermal water heaters in low-income homes
- Psalms Generating, Llectric Solaire LLC/Private, \$40,000, used to upgrade existing system from 30kW to 60 kW

## Outreach

- 20 Farm Bill workshops  
Average number of website visitors: 40,000 Daily
- 2997 publications
- 4 news articles, press releases
- 1 public event, estimated attendance: 11,500

## New and Noteworthy Accomplishments

The MDA-Energy Division partnership has promoted:

- the use of solar pv through Lectrique Solair upgrade from 30kW to a 60kW system
- Solar Thermal and PV Installation at the Mississippi Agriculture Museum for visitors to see
- Farm Bill Workshops (3) to demonstrate solar opportunities
- Creation of the MS Solar Society
- MS first Solar heated pool

## Activities Underway

The selection of housing agencies by MDA-Community Service to plan solar installs.

**Upcoming Events**

- Solar water heater trainings for housing agencies
- Energy awareness month in October
- Support the Houston MS- Solar race team

**What We Could Use Help With**

Here in Mississippi, the largest barrier to progress stands with the lack of political backing to offer incentives for the use of solar and the financial resources to assist with leveraging federal dollars.

**Progress Toward Our MSR Goal**

We feel as if we are on target with the project, however, our time-line has been altered. With the notable changes of staff, and new administration, a new evaluation of progress, constant innovative changes, and are we fulfilling our planned obligation. Therefore, we are working to promote a new plan of enhancing our contract obligation to get a larger return on our investment by increasing solar in Mississippi.

# North Carolina Million Solar Roofs Initiative

## Partnership Lead Organization

Contact Person: Valerie Everette, NC MSR

Program Manager

Contact Organization: NC Solar Center

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Phone Number: 919-515-5690

Fax Number: 919-515-8585

Email Address: [valerie\\_everette@ncsu.edu](mailto:valerie_everette@ncsu.edu) Website

Address: [www.ncsolar.net](http://www.ncsolar.net), [www.ncsc.ncsu.edu](http://www.ncsc.ncsu.edu)

## Year of Formation

1999

## Million Solar Roofs Installation Goal

Our goal is the installation of 3,000 solar energy systems in North Carolina by 2010.

The mission of the North Carolina Million Solar Roofs Partnership is to promote the adoption of solar technologies in order to protect our natural environment, encourage energy independence, and stabilize energy costs for North Carolina's citizens.

## Other Partners

State Partner:

- State Energy Office, NC Dept. of Administration – Bob Leker  
[bob.leker@ncmail.net](mailto:bob.leker@ncmail.net), 919-733-1907

Eight Community Partners:

- Asheville area - Western NC MSRI sponsored by Western NC Green Building Council
- Boone area - Appalachian Regional Initiative for Sustainable Energy (ARISE) sponsored by Watauga County Cooperative Extension Service and
- Blue Ridge Resource Conservation & Development
- Chapel Hill area - Chapel Hill MSRI sponsored by Town of Chapel Hill
- Charlotte area - Citizens Leading in Education & Awareness of Renewables (CLEAR) sponsored by Centralina Council of Governments
- Durham area - Clean Energy Durham sponsored by Durham County Cooperative Extension Service
- Fayetteville and Sandhills area - Sustainable Sandhills MSRI sponsored by Sustainable Sandhills
- Greensboro area - Guilford Solar Communities Program sponsored by Guilford County Cooperative Extension Service
- Wilmington area - Solar Energy Now South East (SENSE) sponsored by the Cape Fear Green Building Alliance and The Southeastern Alliance for Community Change

## Cumulative Installations

We have developed an on-line renewable registry to track solar, wind, and small hydroelectric installations in NC.

We have applied for the domain name [www.NCRERegistry.org](http://www.NCRERegistry.org) and hope to have the registry available at this address soon. Our eight NC MSR Community Partners are busy tracking solar installations in their communities.

We will be using 2005/2006 grant money to identify additional systems across the state. We hope that by making our Registry searchable by installer that our local installers will assist us by entering future systems that they install.

Estimate:

- Photovoltaics – 120 systems; 290 kW capacity\*
- Solar Hot Water – 350 systems; 29,179 mmBTU/year capacity\*\*

\*based on a 2003 survey of solar installers; includes one 100 kW system

\*\* based on EIA data on shipments of solar thermal systems to NC; substantiated by 2003 installer survey.

MSR-eligible systems entered in NC RE Registry as of July 2005:

- Photovoltaic: 59 installations; 190 kW
- Solar Hot H2O: 55 installations; 1300 mmBTU/year capacity

## Solar Schools

While many new schools in North Carolina are incorporating daylighting and other passive solar strategies, we are aware of eight K-12 schools that have installed photovoltaics or solar thermal systems.

- How many classes per year are exposed to solar projects and lesson plans?  
430
- Average number of students per class 18
- Grade levels:  
5<sup>th</sup> through 12<sup>th</sup>, Community Colleges, Universities
- Number of teachers trained:  
430
- The solar PV system and solar hot water system can be monitored by visiting students
- The solar house is not linked to other schools at this time

We have active NC Junior Solar Sprint and Carolina EV Challenge programs that hold their statewide events in the spring of each year. Several hundred junior and senior high school students from across the state participate each year.

During 2005 - The North Carolina State Energy Office, The National Energy Education Development (NEED) Project, and Altair Energy are partnering to install 1.92 kW photovoltaic (PV) systems at six schools across North Carolina. Five schools will receive a straight grid-tied system, while the sixth will receive a grid-tied battery backup system.

## Leveraged Resources

In 2003/2004, the NC State Energy Office contributed \$80,809 and the NC Solar Center provided cost share of \$34,010 for MSR activities. In addition to these monies, other NC Solar Center and State Energy Office funding goes towards solar workshops and other solar education and awareness activities that are a part of NC MSR. In addition, the eight NC MSR Community Partners provided in-kind services such as administrative support.

## Outreach

- One photovoltaic and three solar thermal (electricians, plumbers, solar installers, homeowners, educators, state officials) – average number of participants: 25
- Average number of website visitors estimate 800 per month; we will begin tracking visitors to this new site later this summer
- Number of brochures, guides, directories, *etc.* printed and distributed 5,000
- Number of news articles, press releases 15
- Number of public events 77; public meetings 84, estimated attendance: 5,460

## New and Noteworthy Accomplishments

- Added three more NC MSR Community Partners in 03/04 for a total of eight communities in NC
- Developed NC MSR website at [www.ncsolar.net](http://www.ncsolar.net)
- Developed NC Renewable Energy Registry for tracking solar installations [www.NCRERegistry.org](http://www.NCRERegistry.org)
- Developed Renewable Energy Technologies (RET) Diploma Series\* 2005 Working with Local Governments Project
- Financial Models Project
- Renewable Energy Registry

\*120-contact hour non-credit program from North Carolina State University providing continuing education and professional training of renewable energy technologies in the marketplace.

## Activities Underway

- Renewable Energy Diploma Series
- Working with Community Colleges
- Working with Local Governments
- Financial Models Project

## Upcoming Events

- ISES Aug. 6-12, 2005 (exhibit)
- SEE Expo Aug. 26-28, 2005 (exhibit and training)
- Renewable Energy Implementation at Park Facilities Aug. 25-26, 2005 (training)
- Energy Independence Days Sept. 19-24, 2005 (training)



- Statewide Green Building Tour October 1, 2005
- SEIA/SEPA Solar Power 2005 Oct 5-9, 2005 (exhibit)
- MSR Partnership Meeting Nov. 5, 2005
- Renewable Energy Technologies Diploma Series Aug. 29-Sept 2, 2005 (training), Oct. 31-Nov. 4, 2005, Mar. 13-17, 2005

### **What We Could Use Help With**

The initial cost of solar continues to be the biggest barrier to new solar installations in North Carolina. How are others overcoming this barrier? What types of innovative financing programs are other Partnerships developing or utilizing?

Understanding what resources have been developed by other Partnerships will help us greatly so we don't "reinvent the wheel".

### **Progress Toward Our MSR Goal**

We are in the process of populating our Renewable Energy Registry, an online Registry of solar (and wind and small hydro) systems in North Carolina that will help us track our progress in meeting our goal of 3,000 new solar installations in NC. We think this goal is achievable and we intend to work hard to meet this goal.

# South Carolina Million Solar Roofs Partnership

## Partnership Lead Organization

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Website Address: [www.energy.sc.gov](http://www.energy.sc.gov)

## Year of Formation

2001

## Million Solar Roofs Installation Goal

To document over 500 solar installations [MSRI certified] by 2010.

The SC Energy Office Solar Mission is to assist in the development of partnerships between state agencies, the solar industry, the building industry, local governments, electric service providers, and non-governmental organizations to determine what the barriers are, how to overcome them, and to assist in strengthening the demand for the implementation of proven solar technologies in South Carolina.

## Cumulative Installations

Year 2004

<u>Type System</u>	<u>Number</u>	<u>BTU Output/day</u>	<u>BTU Output/year</u>
<u>Commercial</u>			
DHW	2	1,706,868	467,255,115
<u>Residential</u>			
Pool Heating	2	340,000	93,075,000
DHW	9	436,000	119,355,000
<b>Total for 2004</b>	<b>13 Installations</b>	<b>2,482,868</b>	<b>679,685,115</b>

The South Carolina Energy Office maintains a database entitled 'Solar Installations in SC' at the following website address:

<http://www.state.sc.us/energy/PDFs/Web%20Solar%20Installations%202-22-05.pdf>

The database shows we are at 16.2% or 81 solar systems - of South Carolina's goal of 500 solar roofs by 2010.

## Solar Schools

- 177 6th grade classes (3,892 6th graders) got a hands-on presentation on solar energy during the 2004-2005 school years.
- Average of 22 6th graders per class.
- 347 teachers were trained to use a solar energy lesson from the *Action for a Cleaner Tomorrow* curriculum supplement last school year.

- Student pre-test score average taken before class presentation begins: 52.5%; student post-test average taken after presentation: 88.7%. Students' knowledge of energy increased by 36.2% based on the in-class presentation.

### **Leveraged Resources**

The SC Energy Office issued a Public Building Solar Initiative, offering up to a \$25,000 grant to a government agency, college, university or non-profit organization to install a solar water heating system. The University of South Carolina – Aiken Campus was awarded a grant to install a system to assist in heating the Natatorium pool.

The SC Energy Office hired a solar contractor to service and provide a training course to personnel at the Williamsburg County jail in Kingstree, SC, on an old active solar water heating system with thermal storage. After being serviced, this system is providing one-third of the hot water needed at the facility, saving the county approximately \$213 monthly or \$2,556 annually.

The South Carolina Energy Office has established a Residential Solar Initiative (RSI) for EarthCraft Homes to demonstrate and document the technical, and economic, and practical aspects of residential solar water heating systems in South Carolina. The RSI provides \$1,000 rebates to builders who install solar water heating systems on energy efficient EarthCraft houses.

The South Carolina Energy Office is working with the South Carolina School for the Deaf and Blind, in Spartanburg, to place a used solar system on their indoor swimming pool in the Voss Center.

### **Outreach**

Ten Partnership meetings were held with solar dealers, homeowners, lawyers, architects and businessmen.

The Solar Financing Brochure was developed in cooperation with York Technical College. Four MSR newsletters have been produced and distributed. There was representation at three Home Shows throughout the state with where 2,158 people visited the booth, and approximately 50% of them inquired about solar technology.

### **New and Noteworthy Accomplishments**

- Solar Energy Financing Options Brochure
- PV/DHW Working Solar Demonstration Model for use throughout the state.



### **Activities Underway**

The South Carolina Solar Council has been formed from members of the SC MSR Partnership and chartered as the state chapter of the American Solar Energy Society.

**Upcoming Events**

The SC Solar Council has met four times since its formation. The Council's next meeting is scheduled for August 26, 2005.

**What We Could Use Help With**

Currently, the largest obstacle facing the partnership is high initial cost.

**Progress Toward Our MSR Goal**

We are on target. We are not ahead of our target.

- 81 Installations/500 Goal = 16.2%
- 418 remained to be installed by 2010 - In other words, we need 83 systems per year.

# Tennessee Million Solar Roofs Initiative

## Partnership Lead Organization

Contact Person: Gil Melear-Hough, TN Million Solar Roof Coordinator

Contact Organization: Southern Alliance for Clean Energy

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Website Address: [www.cleanenergy.org](http://www.cleanenergy.org)

## Other Partners

We work closely with Big Frog Mountain, MSR partner based in Chattanooga, TN and we also have a close working relationship with the Tennessee Valley Authority's Generation Partners program and the Building Technology Center at Oak Ridge National Laboratory and we are developing an ongoing relationship with Cleveland State Community College focused on installer training.

## Year of Formation

2002

## Million Solar Roofs Installation Goal

500

## Cumulative Installations

We presently count 82 MSR- qualifying, PV systems using the latest equivalent residential installations system counting method with a total capacity of 142 kW.

## Solar Schools

There are two high Schools with solar on them that sometimes will use the solar for educational purposes Gibson County High School in Dyer, TN and Cocke County High School in Newport, TN. in addition Ijams Nature Center in Knoxville, TN has a solar system they use in their area school Earth Flag Program and this past year the University of Tennessee set up a solar and wind functioning solar and wind demonstration system and Middle Tennessee State University built a solar to hydrogen PV system.

## Leveraged Resources

The State Energy Office is supporting the program by a total of 286,560 through July 31, 2007 in addition our partners (see #4) often share expenses for project such a TVA for technical training seminars.

## Outreach

- The Partnership organizes the annual Knoxville Solar Homes tour and helps with several other state solar tours – attended by around 50 people.
- Works in conjunction with TVA on two technical seminars in 2004 usually attend by around 50 people.
- Organized the annual Solar State Stakeholder meeting on March 26<sup>th</sup> attended by 30 people working to promote solar in Tennessee.

## New and Noteworthy Accomplishments

- Worked with Oak Ridge National Laboratory on promoting the 4<sup>th</sup> new model Zero Energy Home with Habitat for Humanity and started a new project to start the commercializing of this technology.
- Continued work to get local utilities to participate and support the TVA Generation Program.
- Helped promote technical seminars with TVA Generation Partners program

## Activities Underway

- Working on develop Zero Energy Homes for commercial residential developments
- Working to help develop and support the new NABCEP beginner certification at Cleveland State.
- Will be working to promote a Solar Technical Seminar in the Memphis area this fall.

## Upcoming Events

Will be participating in the South East Energy Expo <http://seeexpo.com/> and organizing the Knoxville Solar Homes Tour.

## What We Could Use Help With

The large capital cost of new systems – the national partnership has been helpful with technical support and ideas for programs from our regional MSR partners.

## Progress Toward Our MSR Goal

The rate of growth in installations is growing every year and I do believe we will achieve our goal.

# Western Region

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## Regional Office Report

### Arizona

Arizona Solar Initiative  
Greater Tucson Coalition for Solar Energy  
Salt River Project

### California

Bay Area Solar Consortium  
City of Anaheim  
City and County of San Francisco  
Great Valley Solar Partnership  
Marin Solar Program  
Sacramento Municipal Utility District  
San Diego Regional Energy Office  
Santa Barbara County MSR Partnership

### Hawaii

Island of Hawaii  
Kauai MSR Partnership  
Island of Maui MSR Partnership

### Idaho

Idaho PV4You Solar Working Group

### Nevada

Nevada MSR Partnership  
Tahoe-Nevada Area MSR Partnership

### Oregon

Oregon MSR Coalition

### Washington

Washington MSR Collaborative



# The Solar Year in Review for the Western Region

## *Prepared by the Western Regional Office*

### **I. Activities, Advances & Accomplishments of Note**

- General Comments and Trends  
The Western Region welcomed one new Partnership this past year: The Tahoe-Nevada Partnership. The addition of this new Partnership brought the total number of Partnerships in the Western Region to 30.

A tremendous amount of activity this past year has focused on state initiatives to promote solar. Partnerships have been active in providing technical assistance and support to the development and/or implementation of statewide efforts. Below are just a few of the highlights:

- Washington State passed two solar bills. One creates provisions for manufacturing to locate in economically depressed areas of the State and will encourage individuals and local governments to install solar, wind, and biomass generation equipment by paying for the power generated. The other establishes a production-based solar incentive. The legislation comes out of a study titled, “The Washington Solar Electric Industry: Sunrise or Sunset? A Closing Window of Opportunity,” which was prepared by Washington State University, and partially funded through a Million Solar Roofs grant.
- In California, the State’s Million Solar Roofs Bill, SB-1, co-authored by Senators Kevin Murray (D-Los Angeles) and John Campbell (R-Orange County) and endorsed by Governor Schwarzenegger continues to progress through the state legislature. SB 1, would establish a long-term solar

power program aiming to build a million solar homes and businesses over ten years, including building half of all new homes with solar power by 2017. It includes financial incentives for homeowners and businesses to invest in solar, such as upfront rebates and net metering. SB 1 will also require that solar power become a standard offer for all new homebuyers.

- In Arizona, the Corporation Commission agreed to core elements of a revised Environmental Portfolio Standard. The new EPS requires 15 percent renewable energy by 2025. Some of the other elements include a 30% distributed renewable resources set aside; independent administration of EPS fund; and a requirement for consistent and uniform net metering and interconnection.
- The Nevada Partnership has become more actively involved in the SolarGenerations program, in which the state PUC authorized incentive payments for PV, to be administered by the state’s two large investor-owned utilities. The Partnership has witnessed a 300 percent growth in the number of installations as a direct result of the program’s success.
- Hawaii passed two bills which improve on their net metering statute. In addition, they adopted Act 157 of 2005 (re: solar covenants) which requires private entities to adopt rules regarding the placement of solar energy devices. It allows for the installation of solar energy devices on any privately owned single-family residential dwelling or townhouse, with limited restrictions.



- **Regional Peer-to-Peer Exchange**  
The Western Regional Office and the Central Regional Office hosted a joint Peer-to-peer meeting in Phoenix, AZ in May, 2005. There were over thirty participants, with good representation from both regions. We welcomed the participation of some of our newer partnerships, including the County of Santa Barbara and the Central Valley of California. The meeting focused on the numerous state-level initiatives developing throughout both regions, and how Million Solar Roofs Partnership have, and/or can support their successful implementation.

Stay tuned for information on the next Peer-to-Peer Exchange to be held sometime next Spring.

- **2004/2005 MSRI Grants Review**  
In Fiscal Year 2004, the Western Region awarded grants to ten partnerships, totaling nearly \$500,000. Awardees included two Phase I partnerships: Great Valley Solar Partnership, representing the Central Valley of California; and The County of Santa Barbara Partnership. Phase II recipients included: the Greater Tucson Coalition for Solar; Idaho Department of Water Resources, Marin County Community Development Agency; Oregon Department of Energy; San Diego Regional Energy Office; University of Nevada, Reno; Washington State University; and Maui Electric Company, Limited.

For Fiscal Year 2005, the Western Regional Office received 16 grant applications and awarded grants to eight partnerships, totaling roughly \$380,000. The Renewable Energy Leadership Group (on behalf of the Salt River Project, Arizona Partnership) was awarded a Phase I grant. Phase II grants went to: The Greater Tucson Coalition for Solar; Marin County Community Development Agency; Oregon Department of Energy; San Diego Regional Energy Office; Washington State University; Great Valley Center (on behalf of the Central Valley Partnership); and the Community Environmental Council (on behalf of the County of Santa Barbara Partnership).

## Looking Towards the Horizon

- *Focus Areas & Key Challenges*

The Western Governor's Association has set a goal of 30,000 megawatts of clean energy by 2015 and a 20 percent improvement in energy efficiency by 2020. The Clean and Diversified Energy Advisory Committee will present its draft recommendations for public comment this fall. The Western Regional Office will help disseminate information on this and other initiatives/opportunities in the region as information becomes available.

- *Upcoming Events*

Northwest Solar Summit 2005 –  
October 17-19; Wenatchee,  
Washington

### Million Solar Roofs Regional Coordinator Contact Information:

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Western Regional Office  
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Heather.Mulligan@ee.doe.gov  
<http://www.eere.energy.gov/regions/western/>

# Arizona Solar Initiative

## Partnership Lead Organization

Contact Person: Jim Arwood, Solar Coordinator  
Contact Organization: Arizona Dept of Commerce  
Energy Office  
Mailing Address: 1700 W. Washington, Ste 220,  
Phoenix, AZ 85018  
Phone Number: 602-771-1144  
Fax Number: 602-771-1203  
Email Address: [jima@azcommerce.com](mailto:jima@azcommerce.com)  
Website Address: [www.azcommerce.com](http://www.azcommerce.com)

## Other Partners

- Arizona Solar Energy Advisory Council
- Arizona Solar Energy Industry Association
- Arizona Solar Energy Association
- Arizona Solar Center

## Year of Formation

1997

## Million Solar Roofs Installation Goal

Goal: 100,000 systems by 2010

The Mission of the Arizona Solar Initiative is to encourage individual, local, and statewide action that capitalizes on the national Million Solar Roof Initiative and the region's explosive growth. This Initiative will help enable Arizona to become a national leader in solar energy utilization, manufacturing, and exports.

## Cumulative Installations

- Prior to 2004 the equivalent of 4220 PV systems were installed in Arizona.
- During the reporting period through 7/1/2005 44 SDHW systems were installed through the APS rebate.
- During the reporting period APS installed 1.742 mW of PV and 1 mW of solar concentrating or the equivalent of 1097 residential systems.
- During the reporting period through 7/1/05 APS provided rebates to the equivalent of 142 residential systems.

- During the reporting period through 7/1/05 APS provided commercial rebates to the equivalent of 71 residential systems.
- Total APS equivalent of residential systems totaled 1310 during the reporting period energy 7/1/05
- SRP provided rebates to the equivalent of 49 systems: 18 PV and 31 SDHW.
- Total Arizona numbers (excluding Tucson – reported by Tucson Solar Coalition) this reporting period the equivalent of 1364 residential systems were installed.

## Solar Schools

- How many classes per year are exposed to solar projects and lesson plans?  
More than 200 classes. In addition to eight solar schools in Arizona, the Environmental Campus for Flagstaff Unified School District and Tucson Unified School District also offer solar curriculum. Both these environmental campuses serve more than 80,000 students per year. Solar is incorporated into the entire operation of each campus.
- Average number of students per class. 30 students per class
- Grade levels: K-12
- We have developed the Solar Cooking Classroom Curriculum. It has been shared. Last count more than 500 teachers throughout the state had a copy of the curriculum.
- We co-sponsor the Junior Solar Sprint competition each year which involves more than 20 classes from throughout the state and more than 200 students.

## Outreach

- 14 workshops, 60 participants
- More than 400,000 website visitors
- Four news articles and press releases
- Four public events, estimated attendance 10,000

### **New and Noteworthy Accomplishments**

The Arizona Energy Office Staffed the Governor's Renewable Energy Working Group that met monthly for seven months and issued a report and list of recommendations to the Governor. As a result of this process, the Energy Office assisted in writing the Governor's Executive Order that calls for 10 percent of energy for new state funded buildings come from renewable energy or RECs.

The Energy Office was charged by the Governor's Office with defining process for purchasing RECs. In response, the Energy Office assembled a working group that delivered a report to our Office that was the basis for the recommendation to the Governor's Office.

Governor declared October as Solar Energy Month. Energy Office assisted in writing the proclamation.

The MSR funded documentary Sunrise, has aired repeatedly on the local cable access channels throughout the state.

Conducted a Tribal Energy Meeting for the Governor's Office. Representatives of 14 tribes in Arizona attended the summit. As a result of the summit two renewable energy projects (one solar project) resulted.

### **Activities Underway**

- Working with the Arizona Solar Industry Association and MSR Partner Tucson
- Coalition for Solar to develop a job survey for Arizona solar businesses. More than 150 surveys were distributed statewide. Awaiting results from survey company.
- Working with a Phoenix economists to develop a solar incentive survey for commercial businesses. Survey was distributed randomly to businesses that have more than 10,000 square feet of commercial building, awaiting results of survey.
- Worked with four Arizona tribal governments on renewable energy projects and feasibility studies, of which three include solar. Projects are being presented to a panel of financing experts at our upcoming
- Tribal Energy Meeting for feedback and financing suggestions.

### **Upcoming Events**

The Energy Office is a co-sponsor of the upcoming Southwest Sustainability Expo August 5-6 in Flagstaff.

The Energy Office is the sponsor of the upcoming Governor's Tribal Energy Meeting in Flagstaff on August 5.

### **What We Could Use Help With**

It appears that CC&R issues may be resurfacing. The Energy Office will evaluate whether this problem is becoming more prevalent and will request help as appropriate.

Education continues to be the largest barrier. Consumer awareness remains the low.

### **Progress Toward Our MSR Goal**

We believe we are on target toward our overall goal for the entire state. Momentum is definitely starting to build and numbers are increasing as a result. The driver in 99% of the installations in Arizona came from the Environmental Portfolio Standard. The EPS is being re-valuated currently and may require a higher percentage and provide more dollars toward achieving that goal.

# Greater Tucson Coalition for Solar Energy

## Partnership Lead Organization

Contact Person: Valerie Rauluk, Director  
Contact Organization: Venture Catalyst Inc.  
Mailing Address: PO Box 42708 Tucson, AZ 85733  
Phone Number: 520-326-3195  
Fax Number: 520-326-5986  
Email Address: vajra@vecat-inc.com

## Other Partners

The City of Tucson  
Venture Catalyst Inc.  
Town of Marana  
University of Arizona  
John Wesley Miller Companies  
Expert Solar Systems  
BTB Solutions  
Tucson Unified School District

Community of Civano  
Progressive Solar  
American Solar Electric  
Larry Medlin Architects  
Pima Community College  
Armory Park Del Sol  
The Solar Store  
Solar Built

## Year of Formation

1998

## Million Solar Roofs Installation Goal

20,000 units by 2015

## Mission

- To increase community investment in solar energy applications by stimulating demand and enhancing supply.

## Goals

- To establish solar energy as a viable alternative in commercial applications.
- To establish solar energy as a viable alternative in institutional applications.
- To establish solar energy as a viable alternative in residential applications.

## Cumulative Installations

### Tucson Metropolitan Area Solar Energy Scorecard

*As of 12/2004*

	Total to Date	2004
Solar Electric Systems*		
Total Systems	2,837	542
Total Kilowatt Capacity	5,620	1,067
EPS Solar Electric Systems actual **	4	1
EPS Solar Electric Systems Equivalent	2,331	405

EPS Kilowatt Capacity	4,662	810
Solar Thermal Systems*		
Domestic Hot Water	895	236
Solar Pool Heaters (restated)	1,650	688
Solar Space Heaters	54	7
Total Systems***	2,599	931
Total Kilowatt Capacity	9,307	3,697
<i>Total Solar Systems</i>	5,436	1,473
<i>Non-Central Station Community EPS Installations</i>	3,105	1,068
Kilowatt Hours****		
Solar Electric	9,845,539	1,868,683
Solar Thermal	10,202,000	3,933,000
<b>Total Solar Kilowatt Hours</b>	<b>20,047,539</b>	<b>5,801,683</b>

### Solar Schools

TUSD has a solar energy curriculum for Middle School students (developed with US DOE support) on its website: <http://instech.tusd.k12.az.us/environment/index.htm>. It is uncertain how many students have been exposed to the curriculum since it is a resource all TUSD teachers can use to incorporate into their science curriculum in whole or part. In addition, the curriculum is available for use for anyone with internet access.

In addition, in conjunction with the local utility, the “Sunsite Funsite” provides activities and worksheets for students [tep.com/community/educational](http://tep.com/community/educational) services.

Grade levels are 6, 7, and 8, and 4 schools have solar electric systems with real time data available on the internet.

### Leveraged Resources

Arizona’s Environmental Portfolio Standard makes available approximately \$30 million per year for investment in renewable energy with a preference for solar electric investment in the state of Arizona (Tucson region allocation is \$6 million). GTCSE has been actively involved since inception (2001) to assure that the funds are directed to support solar energy investment, especially customer sited, distributed solar energy. In the last two years, GTCSE involvement has substantially increased as the rule is revised for increased funding, distributed, customer-sited set-asides, and independent administration of the distributed allocation.

The City of Tucson’s “1% for Solar” has designed, promoted, established and in recent years extended, with extensive involvement of GTCSE (\$160K per year since 2000).

In the last two years, GTCSE has spearheaded an initiative with the City of Tucson to leverage the 1% for Solar with 3<sup>rd</sup> party financing. The City is in the final stages of contracting with a provider. GTCSE, with support from MSR and Sandia National Labs has created a “how-to” resource to expand the use of this approach via a web-based delivery mechanism. GTCSE began promoting the mechanism for other municipalities and commercial projects for the last eighteen months.

The State of Arizona also offers a tax credit and sales tax elimination incentives for solar energy. These have been in place since the mid-1990's.

## **Outreach**

- Annual Solar Adventure, for 2005 combined with a Spring Solar Home Tour.
  - Average number of participants: 250 to 3,000
- GTCSE has a presence on several websites: the Tucson-Pima Metropolitan Energy Commission (35,575 per year) and the Arizona Solar Center (105,000 per year)
- We have a standard email package that we use which includes a summary of the best solar energy websites, a list of the coalition vendors and contact info and the Arizona Consumer's Guide to Solar Electric Systems which was developed by the state energy office and NREL>
- Respond to approximately 120 requests by email or phone per year.
- Two articles in connection with the EPS revision activities.
- Meetings with key community leaders

Most of our outreach has been focused on this area, since it is where we get the biggest bang for the buck (increases in funding, allocations to projects, and policy changes).

Discussions with Arizona Corporation Commissioners: Over 20 meetings in the last year  
Discussions with City of Tucson Staff & Council members: Over 25 meetings  
Discussions with Town of Oro Valley Council members & staff: 6 meetings  
Discussions with Town of Marana staff: 3 meetings  
Discussions with Pima County Supervisors: 3 meetings  
Discussions with State of Arizona staff, legislators & governor's staff: Over 20 meetings

## **New and Noteworthy Accomplishments**

- 3<sup>rd</sup> party financing and "how-to" Solar Value presentations and materials.
- PV Economic Analysis for Commercial Installations
- Collaboration with State of Nevada (University of Nevada Reno) on outreach and project demonstration

## **Activities Underway**

- Revision, expansion and emphasis for distributed solar energy systems for the Arizona Environmental Portfolio Standard.
- Interconnection and Net Metering workshops to develop a state-wide standard and net-metering.
- Development of Independent Administration for the distributed portion of EPS funding.
- Use of solar thermal for air conditioning applications (in collaboration with State of Nevada).
- Increasing application of 3<sup>rd</sup> party financing.
- Developing a Campaign for a Solar Friendly Tucson with City of Tucson.

## **Upcoming Events**

Ribbon cutting for City of Tucson Solar Electric covered parking in October.

**What We Could Use Help With**

Financing: we need to really push on the industry to make financing a standard part of their product offering.

**Progress Toward Our MSR Goal**

As of the end of 2004, we have achieved 27% of our goal of 20,000 units. From 2003 to 2004 we experienced an increase in units installed of over 50%. Given the increase in funding from our soon to be revised EPS we can expect at least a 50% increase for the next few years and then leveling out.

Total to date:	5,436
2005	1,602
2006	2,403
2007	3,605
2008	5,407
2009	6,000
2010	6,000
Total	30,453

# Salt River Project

## Partnership Lead Organization

Contact Person: Lori Singleton, Manager Environmental Initiatives

Contact Organization: SRP

Mailing Address: PO Box 52025, PAB 355, Phoenix, AZ 85072-2025

Phone Number: 602-236-3323

Fax Number: 602-236-3407

Email Address: [lasingle@srpnet.com](mailto:lasingle@srpnet.com)

Website Address: [www.srpnet.com/solar](http://www.srpnet.com/solar)

## Year of Formation

2004

## Million Solar Roofs Installation Goal

SRP's commitment is to actively promote and encourage investment and interest in solar power –emissions-free and inexhaustible source of energy. SRP's EarthWise Solar Energy Program pays \$3 per watt up to 3 kW systems (maximum \$9,000) for solar photovoltaic systems. We also pay \$750 for solar water heater installations. We have an annual budget of \$1,000,000 reserved for solar customer payments.

## Cumulative Installations

System	<u>2004</u>	<u>*From Inception to Date</u>		
	#	Capacity	#	Capacity
PV Systems	1	2.6 kW	19	54.2 kW
Water Heaters	0	0 kWh	32	69,500 kWh

\*SRP's program just started late 2004.

## Solar Schools

PV systems have been installed on three schools within our service territory in the metropolitan Phoenix area: Cesar Chavez High School, South Mountain Community College, and Scottsdale Community College. The only school that might integrate the PV system into their lessons/education is Scottsdale CC. On the Scottsdale Community College campus, they have a teacher-led Sustainable Resources club.

The only other education related to solar is the Powering our Future education program which has a curriculum for high schools that is dedicated to solar.

- How many classes per year are exposed to solar projects and lesson plans?  
200
- Average number of students per class  
28
- Grade levels  
Grades 6-12
- Number of teachers trained



We launched the Powering Our Future curriculum last year, and have in-serviced about 200 educators to date, with many more in-services planned this year.

- Types of curriculum-based tools/resources you have developed
  - Are they being shared with other MSR partners?  
SRP developed a comprehensive, thematic series of units on renewable energy resources for grades 6-12. Teacher workshops are scheduled, and SRP has been in-servicing teachers since last October of 2004. Presently, the Arizona Foundation for Resource Education is offering Powering Our Future workshops, and helping us to aggressively market the program. Curriculum is available to other MSR partners.
- Real-time classroom displays of solar system output, or provision for some other student-accessible monitoring? Links to other schools?  
No not at this time. We have been interested in such a program but to date none of the high schools who have installed solar have implemented displays or monitoring.

### Leveraged Resources

In addition to our \$3/kW paid to residential customers, the State of Arizona also has a \$1,000 tax credit that can be used.

### Outreach

- Average number of website visitors For 8/04-12/04 average visits = 28
- Number of brochures, guides, directories, *etc.* printed and distributed 500
- Number of news articles, press releases 2004 - 3
- Number of public events
  - Estimated attendance

Dates	Name of Event	Location	# attend
8-7-04	Southwest Sustainability Fair	NAU	4,000
10-21-04	Powering Our Future Unveiling Event	Arizona Falls	125
12-3 thru 12-5-04	Tempe Festival of Arts	Tempe, AZ	250,000
3-05	Concert in the Park Series	Desert Botanical Gardens	20,000
4-16 & 4-17-05	Scottsdale Culinary Festival	Civic Center Plaza	30,000
4-31 & 5-1-05	Sun Fest	West World	4,000
7-4-05	Tempe 4 <sup>th</sup> of July Fireworks	Tempe Town Lakes	100,000

### New and Noteworthy Accomplishments

Our database has been invaluable in providing ongoing information regarding statistical information as well as providing the tool to aid in the payment process. We are constantly improving its usefulness by updating and adding more categorical information.

SRP also has a website at [srpnet.com/solar](http://srpnet.com/solar) that answers all questions regarding our program, provides downloadable forms and applications, and a link to a complete solar contractor list.

We also have SolarCalc, an online calculator designed to provide easy, convertible information for the prospective solar customer. This may be accessed at:

[www.srpnet.com/environment/solar/home/calculator/cost.aspx](http://www.srpnet.com/environment/solar/home/calculator/cost.aspx).

**Activities Underway**

We are initiating an employee incentive that will provide them with an extra \$1/kW over the \$3/kW that we are presently paying for the PV systems installations. An additional \$100 will be provided to the \$750 currently being paid to our residential customers who install a solar water heater. This program is anticipated to kick off within the next couple of months.

We will also soon be launching a program which provides incentives for installing solar on commercial businesses (up to 10 kW) & water heating installations. The incentive will be the same as residential but will allow for up to 10 kW.

**Upcoming Events**

- Green Building Expo - September 24, 2004
- Solar Stakeholder Workshop, November

**Progress Toward Our MSR Goal**

Interest in installing solar has been lower than anticipated.

# Bay Area Solar Consortium

## Partnership Lead Organization

Contact Person: Mary Tucker

Contact Organization: City of San Jose

Mailing Address: 777 N. 1st Street, Ste. 301, San Jose, CA 95112

Phone Number: (408) 277-4111

Fax Number: (408) 277-3606

Email Address: [Mary.Tucker@ci.sj.ca.us](mailto:Mary.Tucker@ci.sj.ca.us)

## Other Partners

BASC is comprised of more than 60 members who are dedicated to expanding the use of solar energy and “green” power within the region. Partner organizations include:

### Utilities and Agencies

Alameda Power and Telecomm

Palo Alto Municipal Utility

Silicon Valley Power

### Municipalities and Public Sector

Association of Bay Area Governments

City of San Jose

City of Oakland

City of Berkeley

City of Emeryville

City of Santa Cruz

Environmental Protection Agency – Region IX

San Mateo County Universities and Schools

California State University at Hayward – Geography and Environmental Studies

Chabot Observatory and Science Center

Oakland Public Schools

Renewable and Alternative Energy Laboratory

San Jose Unified School District

San Jose State University – Department of Environmental Studies

University of California at Berkeley – Energy Resources Group Solar Photovoltaic

### Manufacturers and Contractors

Akeena Solar

Applied Power Corporation

Astro Power Inc.

BP Solar

California MicroUtility

EcoEnergies

Endecon Engineering

Helioline

MC Solar

Natural Logic, Inc.

Offline Independent Energy Systems

OnGrid Solar Energy Systems

Pacific Ridge Electric, Inc.

Pacific Solar Company PVUSA

PowerLight Corporation

Real Goods

REgrid Power  
Schott Applied Power  
Siemens Solar Industries  
Solar Self-Help inc.  
Solar Depot, Inc.  
Solar Connection  
Sun Light and Power  
Sunlit Systems  
Xantrex

#### **Non-Profit Organizations**

Architects, Designers and Planners for Social Responsibility (ADPSR)  
Bay Area Action  
Bay Area Earth Day 2000  
Center for Energy Efficiency and Renewable Technology  
Community Energy Services Corporation  
East Bay Solar Energy Collaborative  
Ecology Action – Santa Cruz  
Energy Alliance of Northern California  
Northern California Solar Energy Association (NCSEA)  
ReEnergize East Bay  
Renewable Energy Marketing Board  
Rising Sun Energy Center  
The Rahus Institute

#### **Business and Trade Associations**

- A.J. Hicks Construction
- Intergy Development Corporation
- International Brotherhood of Electrical Workers – Local 332
- National Electrical Contractors Association
- Santa Cruz Chamber of Commerce
- Sustainable Business Alliance: Berkeley

#### **Year of Formation**

1999

#### **Million Solar Roofs Installation Goal**

The initial commitment was 5000 roofs, achieved this in Spring 2003. We raised the goal to 25,000 by 2010.

#### **The mission of BASC is to:**

- Support the development and use of solar energy in the San Francisco and Monterey Bay areas;
- Align the resources and capabilities of the consortium members to install 25,000 solar energy systems within our area by the year 2010;
- Develop a strategy for addressing barriers to the use of solar energy; and
- Develop and implement an action plan for the installation of solar technologies within our Bay areas.

### **Cumulative Installations**

BASC achieved it's initial goal of 5000 roofs (466 individual systems, or 5,477 roof equivalent systems, totaling almost 4.8 MW have been installed in the Bay Area) in Spring of 2003. We've since raised this goal to 25,000 roofs. We have not had the resources to track installations in 2004 or 2005. With the assistance of NorCal Solar, we hope this can start up again.

### **Solar Schools**

Via the Rahu Institute's Solar Schoolhouse Program, we've focused on providing training to teachers at the environmental outdoor schools in the Bay Area. These schools average 5000 student visitors each year, providing an incredible bang result. Developments of the Solar Schoolhouse program are shared with others via Solar Forums and at MSR P2P meetings. Additional info is distributed via the online newsletter Solar e-Clips, available at [www.californiasolarcenter.org](http://www.californiasolarcenter.org)

Rahu, together with Fat Spaniel Technologies, has developed a real-time online monitoring system. The system is designed to provide additional value to the classroom, allowing for more interaction. Approximately 8 schools are currently online via the the webpage.

[http://www.solarschoolhouse.org/newssh/schooldata\\_live.html](http://www.solarschoolhouse.org/newssh/schooldata_live.html) The site is design such that any school, worldwide could be added to the network.

### **Leveraged Resources**

Through working with The Rahu Institute, BASC has been able to leverage funding from other sources. The Rahu Institute conducts work in the solar field throughout California.

### **Outreach**

- 2 Solar Forums – averaging 200 participants each. Audience is government, solar industry, homeowners, and businesses.
- BASC website not active at this time. Rahu maintains several websites, including [californiasolarcenter.org](http://californiasolarcenter.org), averaging 500 visitors per day.
- Distribution materials available electronically

### **New and Noteworthy Accomplishments**

- Adopt-a-Panel Campaign set to begin. Secured ~1200 orphaned solar modules in barter trade with SMUD (Sacramento Municipal Utility District). The modules are have provided power to homes for ~12 years, are good quality, and looking for a new home. Rahu is now developing an "Adopt-a-Panel" campaign to distribute these to schools for projects at low cost.
- Outdoor Environmental School training - conducted several teacher trainings for staff of outdoor environmental schools ([www.aeoe.org](http://www.aeoe.org)), including solar cooking, solar electricity, and solar fountain building. These schools typically serve an average of 5000 students per school year, with grades 5&6 typically visiting for 3-5 days during the year. Now they will have a solar experience during that week at science camp. Very cost effective approach and incredible reach
- Real-time Monitoring for Schools - Together with Fat Spaniel Technologies, Rahu has developed a real-time monitoring solution for schools. Schools can compare and contrast the performance of their PV system with others from across the state, country, world. There are currently 8 sites being monitored, including one from Michigan and Israel. We anticipate additional sites to be included in the coming year. Any school, anywhere with internet connection, can be included in this network. The purpose of this site is to maximize the educational value of a grid-tie PV system. In addition, the industry will also learn about the performance of different solar module types and installation approaches. [http://www.solarschoolhouse.org/newssh/schooldata\\_live.html](http://www.solarschoolhouse.org/newssh/schooldata_live.html)

### **Activities Underway**

- Pre-approved Solar Electric system for schools. In California, the Division of State Architect (DSA) is the construction authority for schools k-12. Expensive custom engineering costs are required for nearly all construction work, which has been a barrier for small PV systems at schools. BASC/Rahus is working to pre-certify several standard designs for schools. Then the permitting cost is minimal at each specific site. Many projects are in the queue for when this gets approved.
- Policy - Solar Hot Water as Conservation Measure. The California Public Utilities Commission has now deemed Solar Hot Water an "energy efficiency (EE) measure", and is requiring that the Investor Owned Utilities (IOUs) include solar hot water incentives in their proposal for EE programs starting in 2006. This will most likely be a rebate, based on performance index, declining over time. This is a huge boost for solar hot water and will require our attention in educational and training arenas in the coming year, as this market comes to life.

### **Upcoming Events**

- Solar Home Tours – October. NorCal Solar is arranging these.
- Solar Forum – September 13 – Santa Clara Convention Center

### **What We Could Use Help With**

With the solar market in California making great strides, it may seem that there is little more to do. In the coming years, to greatly expand the market, we'll need to reflect upon any weaknesses exposed in the market, fix these, and move forward as the new law (SB1-2005) goes into effect next year. Working to encourage a high quality minded workforce is important. The next few years will also be challenging with projected shortages of solar product.

### **Progress Toward Our MSR Goal**

With regard to the installation goal, we do not have current data on where we stand. With NorCal Solar taking a greater role in managing the consortium, we should have this perspective soon. Statewide installations of Solar electric systems continues to increase, indicating that we are moving forward. With a new solar thermal incentive program set to begin in 2006, we should easily reach our adjusted goal of 25,000 systems by 2010.

# City of Anaheim

## Partnership Lead Organization

Contact Person: Dina Predisik, Resource Programs Manager

Contact Organization: City of Anaheim Public Utilities

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Website Address: <http://www.anaheim.net/utilities>

## Other Partners

The Rahus Institute

Foundation for Environmental Education

## Year of Formation

2003

## Million Solar Roofs Installation Goal

The City of Anaheim Public Utilities Department established a set of goals for renewable fuel sources, with a special emphasis on solar energy due to the abundance of sunlight in the region. The goals include:

- incorporating renewable fuel sources into the power generation portfolio
- responding to ratepayer's requests for solar energy implementation
- increasing awareness of environmental benefits of renewable power
- setting an example in Anaheim for the implementation of renewable energy production
- investigating renewable energy technology development and legislative actions to meet State and Federal RPS schedules

Solar education is one of the many components to reach the Department's renewable energy goals. Other actions include installing solar energy systems on City facilities, providing incentives to residential and business customers that install solar energy systems, participating in State and Federal programs that support the Department's goals, and seeking outside sources of funding when available.

Anaheim has developed a PV program specifically for private and public schools. The program is called "*Sun Power for the Schools.*" In addition to funding for PV installations, the program also encourages schools to include solar energy in science curriculums in order to promote the use of PV and to develop familiarity with the technology. As part of the program, the Department developed a *Public Solar Energy Education* project with funding assistance from the Department of Energy's Million Solar Roofs Initiative. The project assists schools by teaching educators about solar energy and ways to incorporate it into existing curriculum.

The training and offered lesson plans are correlated to California subject teaching standards. This helps teachers achieve existing teaching objectives without creating more work in their schedules. Solar energy lessons may be incorporated by teachers to meet math, science, and even social science standards.

Through the workshops that mimic the "hands-on" approach of the curriculum, teachers gain proficiency in the subject matter, become comfortable working with solar energy equipment, and gain practice conducting solar energy labs. The workshops enable teachers to experience the curriculum and technology both from a student and a teacher perspective. The lab kits, posters, and other tools the teachers, schools, and districts receive can be immediately implemented into the existing curriculum once the workshop is completed.

## Cumulative Installations

Installed Capacity:

Actual kW Capacity:

Residential: 34.54

Commercial: 7.09

Schools: 17.87

TOTAL: 59.5 kW

MSR kW Equivalent:

Residential: 69.08

Commercial: 3.55

Schools: 17.87

TOTAL: 90.5

Cumulative:

- Since start of Anaheim Solar Advantage Program (Year 2000-2004): 463.58
- Since Partnership formation (Year 2003): 218.14

### **Solar Schools**

Four schools (three districts) have solar energy systems. Two schools representing two additional districts are in the process of solar energy installations.

- How many classes per year are exposed to solar projects and lesson plans?  
Currently 25 teachers have participated in the Solar Energy Education for Educators project developed by the City of Anaheim along with the MSR Initiative. Though this makes up 25 classes, we assume that teachers are also sharing the education with other teachers.

The current systems that are installed in Anaheim on schools reach the entire student body. As Esperanza High School, the solar energy system is visible from the student quad as teachers, students, parents pass from the classrooms to the activity area for sports, graduation, etc. There on average 3,000 students a year at Esperanza who can easily see the solar energy system which is highlighted in the technology lab curriculum. At Clara Barton and Melbourne Gauer Elementary Schools, the solar energy systems are on top of the new shade structures where students eat their breakfast and lunch. These schools are attended by over 800 students each year.

- Average number of students per class  
The classroom sizes range from 25-35.
- Grade levels  
3-12
- Number of teachers trained  
25 teachers
- Types of curriculum-based tools/resources you have developed

Have not developed curriculum-based tools/resources, but have made these tools available to all educators in Anaheim. The tools/resources were developed by The Rahus Institute.

- Are they being shared with other MSR partners?  
Not currently as the tools are funded by Anaheim Public Utilities and are given to teachers in the City of Anaheim who participate in the workshop.
- Real-time classroom displays of solar system output, or provision for some other student-accessible monitoring? Links to other schools?  
Not at this time, but one school, Jonah Salk Elementary, has applied for funding under the “Sun Power for the Schools” program and intends to have a data acquisition system with website accessibility.

### **Leveraged Resources**

For year 2004, approximately \$480,000 was granted in funding from Anaheim Public Utilities for the installation of solar energy systems by ratepayers.

### **Outreach**

- Two “Solar Energy Basics” workshops a year for residential ratepayers (52 attendees); two “Solar Energy Education for Educators” workshops held for Anaheim teachers/educators (14 attendees); One “PV Power Systems & the 2002 NEC” training for inspectors and installers (12 City of Anaheim employees)
- Five press releases
- Anaheim participated in the Anaheim Achieves after-school program to meet with students and teach them solar energy basics. Estimated participation: 200 students. Anaheim also attended and participated in an Energy Fair at Jonah Salk Elementary School with over 200 students and 600 parents.

### **New and Noteworthy Accomplishments**

Key strategy for increasing solar installations: develop more partnership opportunities.



### **Activities Underway**

- Completed design and approval for solar energy carports for Anaheim Fire Department stations to provide shade for Emergency Response Vehicles and Equipment. Construction to start in November 2005.
- Design for Energy Field in housing development that will demonstrate solar energy generation while also providing green space to the housing community. The project consists of picnic shelters with solar energy technology and a generator field.
- Implementation of *Public Solar Energy Education Project* with workshops for educators and website development for a solar tour.
- Funding design of advanced building integrated solar energy at new Tiger Woods Learning Center in City of Anaheim.

### **Upcoming Events**

- Final Solar Education for Educators workshop August 15.
- Solar Energy Basics workshop October 2005.

### **What We Could Use Help With**

Partnership needs additional partners. Smaller issues are: comprehending the many cost components of solar energy installations so programs can move the price target to an acceptable level. Unfortunately, public sector and private sector goals are often in conflict. It would be great to move towards common goals in public/private sector.

### **Progress Toward Our MSR Goal**

We are ahead of target and will increase our target once we accomplish our first 500 MSR.

# City and County of San Francisco

## Partnership Lead Organization

Contact Person: Kim Knox, Utility Specialist  
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Website Address: [www.sfgwater.org](http://www.sfgwater.org)

## Other Partners

- SF Department of the Environment
- SFTV-SF Dept. of Telecommunications
- IBEW

## Year of Formation

2003

## Million Solar Roofs Installation Goal

- 1,000 homes in three years
- Our mission statement is to encourage installation of photovoltaic systems by creating toolboxes for residents, businesses and nonprofits to help install solar as well as for the City and County of San Francisco to act as a role model to install solar photovoltaic systems on city buildings .

## Cumulative Installations

300 in 2004/300 cumulative All are PV.

## Solar Schools

- 1 private school
- 100 classes per year are exposed to solar projects and lesson plans
- 37 students on average per class
- Grade levels are 1-5
- 307 teachers trained
- Developed student notebooks, available to MSR network upon request

## Outreach

- Number of workshops held and kinds of audiences: 2
- Average number of participants: 60 per workshops
- Average number of website visitors: 30
- Number of brochures, guides, directories, printed and distributed: 2
- Number of news articles, press releases: 1
- Number of public events: 2 press conferences
- Estimated attendance 30 at each

## Activities Underway

We are installing 2.5 kW photovoltaic systems at two libraries and two community medical centers.

## Upcoming Events

We are not planning any events at this time until we heard about the funding for Phase 3.

## What We Could Use Help With

- The long delay in getting panels.
- The price increase of panels.
- The difficulty in getting building permits.

## Progress Toward Our MSR Goal

We are not on target. Mainly due to the delay in getting panels and the price increase of panels.

# Great Valley Solar Partnership

## Partnership Lead Organization

Contact Person: JP Batmale, Former Renewable Energy Program Manager  
Contact Organization: Great Valley Center  
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Fax Number: 209.522.5116  
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Website Address: [www.greatvalley.org/solar](http://www.greatvalley.org/solar)

## Other Partners

- Local Government Commission
- CSU Fresno, Office of Community and Economic Development
- CSU Fresno, Center for Irrigation Technology
- North State Renewable Energy
- City of Fresno
- CSU Chico, Office of the Provost \*\*
- Merced County, Department of Environmental Services \*\*
- Western United Dairymen \*\*
- Sharpe Solar \*\*
- Butte County \*\*
- Butte-Glenn Community College District\*\*
- A1 Solar \*\*
- Unlimited Energy \*\*
- Lodi-Woodbridge Wine Grape Commission\*\*
- Ten private citizens (some elected officials) \*\*

## Year of Formation

2004

## Million Solar Roofs Installation Goal

4 MW by 2010

## Cumulative Installations

As a new partnership, we have not officially recorded any new installations due to our past activities.

## Leveraged Resources

- North State Renewable Energy was able to access over \$5,000 in sponsorships due to the March 10<sup>th</sup> outreach event.
- Due to North State Renewable Energy increased solar activities – as a MSR partner – they were able to garner a \$6,000 grant from a local foundation to support their activities

## Outreach

- Two large workshops, the audience was the entire community
- Great Valley Center is the website host for the partnership. GVC does not track visitors to certain parts of the website. However, it is estimated that website received over 2,000 “hits” from its inception in February to June of 2005. Additionally, the Fresno Bee began a website “BLOG” dedicated to promoting solar in the region, based on the conference. They do not have an accurate count for the number of website visits to the BLOG. However, it is still active and receiving comments, etc.
- GVC and its partners distributed over 1,000 pieces of literature
- There were five news paper articles run about the Partnership, all covering the event. The Partnership used connections with PR firms in Fresno and in Chico to have its press release for both events sent out to over 50 media outlets and associations that publish newsletters.
- Again, there were two public events. One in Chico and one in Fresno.
- Estimated attendance: 400 +

## New and Noteworthy Accomplishments

Fresno Solar Home Tour – The partnership linked NorCal Solar with a local solar activist in Fresno to plan, coordinate, and implement the region’s first-ever solar home tour.

Online Solar BLOG – The Fresno Bee, inspired by the 100+ people attending the solar event, began an online solar BLOG. The purpose was to create an online forum to educate, promote, and debate solar.

NSRE Hiring Staff – Based on the capacity grant from the Partnership and other leveraged, NSRE hired part-time staff to implement solar activities.

### **Activities Underway**

- Finishing the Implementation Plan & Strategy report.
- Developing a board to oversee the growth and continued existence of the Partnership.

### **Upcoming Events**

The only other event currently planned is the public release of the Implementation Plan & Strategy in September.

### **What We Could Use Help With**

- The largest issue now is the formation of a permanent leadership group/steering committee/board to ensure the continued growth and relevance of the partnership.
- Implementing the developed Plan and Strategy. Once this is complete, we'll need to develop the mechanism to implement so that we can reach our installation goals.
- Funding

### **Progress Toward Our MSR Goal**

We are on target to meet our first-year's goals.

# Marin Solar Program

## Partnership Lead Organization

Contact Person: Gwen Johnson, Program coordinator

Contact Organization: Marin County Community Development Agency (CDA)

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Website Address: [www.marinsolar.org](http://www.marinsolar.org)

## Other Partners

Marin County CDA  
Town of Corte Madera  
Town of Belvedere  
Town of Mill Valley  
Cooperative Community Energy  
Eastwood Energy Corporation  
Electric Bills

Greenlight Solar  
Helioline  
Marin Solar  
SolarCraft Services Inc.  
Sunfirst! Solar  
Sunpower & Geothermal  
Energy management Services\*

## Year of Formation

2002

## Million Solar Roofs Installation Goal

Marin County CDA has set a goal to install 5 MW of solar by 2010. Given the mix of solar energy systems already installed and the expected growth in the public, business and residential sector, this is equivalent to approximately 3500 rooftops in the residential sector and 1625 rooftops in the commercial sector.

Marin Solar Program's mission is to foster solar energy use by providing targeted education and outreach to Marin's residents, businesses and institutions.

## Cumulative Installations

Photovoltaics			
Year	Number	Capacity	Roof Equivalents
2004	182	1,273	274
Since 2002	498	2,516	710

## Solar Schools

Two outdoor schools have incorporated solar energy into the curriculum: Headland's Institute and Walker Creek Ranch. Walker Creek Ranch has a small PV system being used for educational purposes – it uses Fat Spaniel for monitoring.

Three school districts in Marin have installed solar energy systems: Shoreline Unified, Ross Valley, and Kentfield. Ross Valley and Kentfield have each installed 300 KW of photovoltaics, nearly zeroing out the electricity costs for their respective schools.

## **Outreach**

- July 2005, the partnership hosted an all-day training on the National Electric Code by John Wiles. Seventy people attended, including building and electrical inspectors, and solar contractors.
- May 2005, the partnership hosted a 2-hour solar education workshop geared towards homeowners. Twenty-four homeowners attended.
- September 2004, the partnership conducted a mailing to businesses located in good solar corridors inviting them to a solar fair on November 4<sup>th</sup>. The solar fair included exhibit booths and a 1.5-hour seminar on financing and procurement strategies for purchasing photovoltaics, twenty businesses attended the event.
- October 2004, the County hosted the Marin Solar Homes Tour and vendor fair for the third year. Sixty people attended.
- Program statistics:
  - Web hits for [www.marinsolar.org](http://www.marinsolar.org) pages: approximately 12,000 hits in the past year.
  - Media: 12 new articles, 4 press releases
  - Public events: lectures at Sonoma State University, the Environmental Forum of Marin Sustainability Series, the Sustainable Business Network's Energy Forum with Hunter Lovins.

## **New and Noteworthy Accomplishments**

- A number of public agencies are using the partnerships free technical assistance services and installing PV systems, including Las Gallinas Sanitary District, City of Novato, Town of Tiburon.
- Created a technical assistance template, which provides information to residents and businesses that details shading, photovoltaic energy production, system costs and savings in report format.
- The Marin County Board of Supervisors initiated a rebate program for solar energy technologies that became available in July 2005. The rebate will support solar thermal systems for domestic water use as well as photovoltaic systems. The partnership sent out a mailing to residents located in good solar corridors, to inform them of the rebate program as well as other solar incentives.
- The Board of Supervisors passed a resolution in support of California Million Solar Roofs Bill (SB1).

## **Activities Underway**

- The rebuild of the County's Throckmorton Fire Station includes a 52-KW PV system in the bid package. The contract will be awarded in August 2005.
- The partnership is working with California Construction Authority to install a PV system on a County fairground facility.
- The County is investigating the feasibility of Community Choice Aggregation, a program that would allow municipalities to purchase electricity on behalf of residents and businesses as a means to increase renewable energy generation and stabilize energy rates.

## **Upcoming Events**

- A green building/solar tour hosted by Build It Green on September 25, 2005.
- The partnership will participate on the local government policy track in Solar Power 2005 to discuss applications of solar mapping for policy and program development.

## **What We Could Use Help With**

Probably the largest barrier we face currently is uncertainty in the marketplace – declining or oversubscribed rebates coupled with supply shortages and higher prices create a tough market for promoting photovoltaic purchases.

Another difficulty we continue to face is creating consistency in plan-checking and building inspection processes throughout the various municipalities in Marin.

**Progress Toward Our MSR Goal**

In 2002, the Marin partnership set a goal of 600 solar energy systems. This goal was increased to 5 Megawatts in 2003 due to a number of factors – these include a high level of market activity, an assessment of solar resources that indicated considerable room for growth, and an update of Marin County’s Master Plan, which increases local government support for solar through policies and programs. As of January 2005, the County is 50% of the way towards meeting its 5 MW goal

# Sacramento Municipal Utility District

## Partnership Lead Organization

Contact Person: Mike Keesee, PV Project Manager

Contact Organization: SMUD

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Website Address: [www.smud.org](http://www.smud.org)

## Other Partners

400,000+ customers of SMUD

## Year of Formation

1997

## Million Solar Roofs Installation Goal

150 kW of residential retrofit systems; 375 kW commercial systems; 100 Zero Energy Homes

## Cumulative Installations

### 2004 Additions by Type

	Total # of Systems	Total AC kW	Total kWh
PV 2 Res Retrofit	59	163	188,103
PV 2 Res New Cnstr.	84	183	40,744
Utility PV	1	115	N/A
PV Self Installs	10	665	N/A
Total	147	1,126	231,731

## Solar Schools

3 schools:

- Gloria Day Luthern School 10 kW
- Inderkum High School 380 kW
- Kit Carson Middle School 20 kW
- 50+ classes per year are exposed to solar projects and lesson plans
- Average number of students per class is 20
- Grade levels are 4-8

- 7 teachers trained to date, 90+ scheduled for 2005/2006
- How-To guides for class and teacher-built solar cookers, solar model cars, solar calculators, solar fountains and other solar-powered devices suitable for classroom demonstration projects
- 1kW demonstration PV array will be installed at designated school with "Fat Spaniel" internet data reporting capabilities. Any other "Fat Spaniel" enabled schools will be able to access PV production data from the demonstration array.
- SMUD will provide up to 80kW of recycled PV modules to the Rarus Institute for community solar education programs in Sacramento County and other locations within California.

## Leveraged Resources

SMUD received approximately \$1.2 million from the California Energy Commission's PIER Program to work on the following solar research projects, including:

- Photovoltaic Markets and Technologies, a market research project to develop strategic options for the next phase of SMUD's efforts to expand the markets for solar electricity in its region.
- The Utility Value of PV, a research effort to study the availability of solar radiation for Sacramento and determine the coincidence between PV generation and SMUD's summer peak-period load profiles.
- Performance Indexing of PV Systems, a centralized data base system and automated monthly PI determination for each PV system interconnected to SMUD's grid based on system meter readings, and daily weather data.
- Laminate and Batten PV Roofing System, working with UNI-SOLAR to develop a building integrated photovoltaic roofing system (PV Roof or PVR) which can be applied to any new or existing roof that has a plywood deck, particle board deck or any other type of solid, continuous under-structure.



- SunTile - Mainstreaming PV for Residential Rooftops, working with Power Light to research and develop a grid-tied residential BIPV roofing system that improves on current technology in price, performance, aesthetics, and ease of installation.
- Flat Roof Mounting Approaches, working with Schott Applied Power to develop amounting approach for flat roof top installations.
- PV and Evaporative Cooling, working with Davis Energy Group PV will be tested for use with locally-manufactured two-stage evaporative cooling units in residential demonstration projects.
- Solar Dish Concentrating System, working with SAIC to develop a 20-25 kW solar dish/Stirling system and a solar dish/photovoltaic system and install a demonstration system of the most reliable and cost effective of the two in SMUD's service territory.
- Non-Vacuum Thin-Film CIGS PV Modules, working with Unisun to research and development on innovative, non-vacuum processes for fabricating low-cost, thin-film photovoltaic (PV) power modules.
- Maximum Power Point Tracker and Operational Dispatch, working with SMA to make PV based systems an economical, firm source of power with full dispatch capability.
- Demonstration of a Hybrid PV and Lighting System, working with Oak Ridge National Laboratory to demonstrate a full-spectrum solar energy system in a commercial building.
- Slat-Array Concentrator Development, working with S.V.V. on two small-scale demonstration projects, which will show that the basic Slat-Array Concentrator can be improved and adapted for uniform concentrated illumination of solar cells, and that a new low-cost system based on the concentrator can be built.

- SMUD sponsors a working group of California utility solar program managers that meets quarterly to discuss and reviewed common issues, such as net metering, interconnection, renewable portfolio standards, new PV technologies, and solar program design.
- SMUD maintains a website @ SMUD.org providing customers information on SMUD solar programs, including a list of contractors and rebate information.

#### **New and Noteworthy Accomplishments**

- Completed first Zero Energy Home (ZEH) community, the 95-unit Premier Gardens project.
- Transitioned from SMUD provided to contractor provided program in an effort to bolster local solar contractor community.

#### **Activities Underway**

- Developing multi-year strategy for fostering the development of a local, sustainable PV market that will align SMUD's program with state-wide initiatives, especially Gov. Schwarzenegger's Million Solar Roofs Initiative, while tailoring program to meet SMUD customer needs.
- Developing Performance Based Incentive (PBI) for implementation in 2006.
- Developing and implementing a pilot schools program including curriculum and demonstration systems.
- Converting PV1, utility owned PV systems to PV2 customer owned systems.

#### **What We Could Use Help With**

We could use help with promoting general awareness of the potential and availability of solar amongst the general public.

#### **Outreach**

- Conducted local building official solar training seminar.

# San Diego Regional Energy Office

## Partnership Lead Organization

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Contact Organization: San Diego Regional Energy Office  
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Website Address: [www.sdenergy.org](http://www.sdenergy.org)

## Other Partners

Assn. of Energy Engineers  
Allied Sun Technologies  
Altair Energy  
ASAP Power  
ASHRAE  
AIA  
BP Solar, Inc  
Borrego Solar.  
Brummit Energy Assoc.  
Carrier Johnson  
Carlson Solar  
Clean Power Energy  
CA Local Gov't. Commission  
CAL-SEIA  
Carlson Solar  
California Energy Commission  
CEERT  
CA Public Utilities Commission  
City of Chula Vista  
City of El Cajon  
City of San Diego Env. Service Dept.  
City of San Diego Building Inspectors  
County of SD  
D-Q University  
Del Mar Fairgrounds  
Endecon Engineering  
Fronius Inverters\*  
Harbaugh Electric  
Heliopower\*  
Home Energy Systems  
Home Depot\*  
Horizon Solar  
Int'l Conference of Building Officials  
Indep. Energy Solutions  
Kyocera America  
League of Women Voters  
Manzanita Tribe

Natural Energy  
Kerr Enterprises  
Newschool of Architecture  
NREL  
Pardee Homes  
Platt & Whitelaw (AIA)  
Powerlight  
PV Powered  
Qualcomm  
Renewable Energy Dev. Inst.  
SANDAG Energy Working Group  
SW Ctr. for Envir. Research & Policy  
SD City Mayor  
SD City Schools  
SD Co. Office of Education  
SD Earthworks  
City of SD  
SDSU Center for Energy Studies  
Shea Homes  
Siemens Solar  
Sierra Club  
Mark Naylor Solar  
San Diego Gas & Electric  
SIT\*  
Solar Design Associates  
SRCC  
STMicroelectronics, Inc  
Sun Earth  
Sun Systems  
Sullivan Electric\*  
Unisolar  
US DOD  
US Navy  
US Postal Service

## Year of Formation

1999

## Million Solar Roofs Installation Goal

### Installation Goal:

The San Diego region seeks to install 20,000 solar roofs by 2010.

### Mission Statement:

The San Diego Regional Million Solar Roofs Initiative (SD-MSRI) mission is to raise awareness of the value and benefits of solar energy technology solutions and to ultimately increase the number of solar energy projects in the San Diego Region.

## Cumulative Installations

### Photovoltaics

Year	kW	Number
1999	29	11
2000	86.3	28
2001	889.5	273
2002	2,040.4	354
2003	3,686.0	531
2004	2,679	539
<b>Total</b>	<b>9410.2</b>	<b>1736</b>

### Solar Hot Water

Year	DHW	Pool
1999	5	170
2000	160	250
2001	176	240
2002	341	51
<b>Total:</b>	<b>682</b>	<b>711</b>

\* We have been unable to gather information on Solar Hot Water after 2002.

### Solar Schools

10 schools in 5 Districts currently have PV. There are 10 additional school projects in the pipeline.

- Grade levels K-12 involved
- 10 teachers trained (at the Solar Fountain Workshop)

## Leveraged Resources

- SDREO partnered with Home Depot to promote our Solar Homes Tour. Home Depot donated \$5,000 toward the event and placed brochures in all its San Diego stores. We believe this sponsorship almost doubled the amount of people attending the Tour.

- SDREO was able to partner with our Self Generation Program to help promote solar, its benefits, available rebates and tax credits by utilizing the Self Generation Program's marketing budget to cross-promote events and technologies. This has resulting in our Self Generation funds being completely committed for 2005.
- SDREO was able to leverage our relationship with local businesses and government agencies to help promote solar by participating in solar dedications, conferences and ribbon cutting events. This has helped increase the publics' awareness of solar.
- SDREO has partnered with Kyocera Solar to give applicants to our Rebuild a Greener San Diego Program a lower installed cost for PV Systems than the State average. Rebuild a Greener San Diego is a program that gives homeowners affected by recent wildfires in San Diego the chance to receive PV incentives that are larger than the CEC Emerging Renewables Program.

## Outreach

- 5 Workshops, one workshop for Educators and four for Homeowners, average participants: 30
- 1500 brochures, guides, directories, printed and distributed
- 5 new articles or press releases
- 3 public events with estimated attendance 150 - 200

## New and Noteworthy Accomplishments

- Solar Homes Tour 2004 was once again our biggest Tour to date with 31 homes on the site. We estimate 1200-1500 people visited at least one site on the Tour
- SDREO has completed its first draft on its study Potential for Renewable Energy in the San Diego Region
- The Photovoltaic incentives for SDREO's Self Generation Incentive Program are no longer available due to the large number of applications

**Activities Underway**

- Completion of GIS Project
- Possible GIS Project with County of San Diego
- Study of economics of solar water heating with Josh Plaistaid from Kineo Consulting
- Planning for Solar Energy Week 2005

**Upcoming Events**

- Solar Energy Week: September 25<sup>th</sup>-October 1st
- Solar Energy Week Kick-off and Ribbon Cutting-Sept. 26<sup>th</sup>, 2005
- Commercial Solar Tour-Sept. 28<sup>th</sup>, 2005
- Solar Energy Conference-Sept. 29<sup>th</sup>, 2005
- Solar Homes Tour-Oct. 1<sup>st</sup>, 2005

**What We Could Use Help With**

The largest barrier to our goal is finding ways to help customers develop innovative financing methods to implement projects. Rebate money is dwindling in the CEC program and our SG Program has committed all its rebate money. We need to find ways to implement solar without the help of rebates or incentives.

**Progress Toward Our MSR Goal**

Installation of PV continues to rise substantially on a yearly basis. We believe we are making excellent progress towards our goal.

# Santa Barbara County Million Solar Roofs

## Partnership Lead Organization

Contact Person: Tam Hunt, Energy Program Director

Contact Organization: Community Environmental Council

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Fax Number: (805) 962-9080

Email Address: [thunt@cecmail.org](mailto:thunt@cecmail.org)

Website Address:

[www.communityenvironmentalcouncil.org](http://www.communityenvironmentalcouncil.org)

## Other Partners

### Non-Profit Sector

- The Sustainability Project
- Santa Barbara County Action Network
- Nuclear Age Peace Foundation's Renewable Energy Project
- Midland School

### Government Sector

- University of California, Santa Barbara
- Santa Barbara County, Department of Planning & Development
- City of Santa Barbara
- Santa Barbara County Air Pollution Control District
- City of Goleta - future partner
- City of Santa Maria - future partner

### Business Sector

- Santa Barbara Contractors' Association
- Allen Associates
- Chamber of Commerce - future partner
- Santa Barbara Architectural Association - future partner
- Marborg Industries

### Solar Industry Sector

- The Solar Energy Company
- Renewable Energy Concepts (REC Solar)
- RWE Schott
- Fronius USA
- Sunrise Energy Solutions
- R&M Technologies
- Mac's Solar (Mike McCrae)
- Deventec
- Shell Solar
- Dexter's Solar Radiant Energy Services

## Utility Sector

- Southern California Edison
- Southern California Gas - future partner
- Pacific Gas & Electric (PG&E) - future partner

## Financial Sector

- Santa Barbara County Federal Employees Credit Union
- Santa Barbara Bank & Trust
- Montecito Bank & Trust
- Mid-State Bank & Trust

## Year of Formation:

2004

## Million Solar Roofs Installation Goal

We plan to facilitate the installation of 750 or more PV systems in Santa Barbara County by 2010

## Cumulative Installations

Since January 1, 2004, 125 solar PV systems have been installed in Santa Barbara County, as of July 1, 2005, according to the California Energy Commission. This amounts to 608 kW of installed capacity.

There has been much less activity on the solar hot water side due to the lapse of state rebates. We have only confirmed three solar hot water systems, though this number certainly could be larger.

There have also been at least 171 solar pool heating systems installed.

## Solar Schools

There are no official Solar Schools members in Santa Barbara County. However, Midland School, a private school, in Los Olivos, has installed a 3 kW system under a grant from BP Solar.

The entire sophomore class (about 25 students) is deeply involved in Midland's solar projects, while another 8 or so juniors/seniors are involved in physics class. However, the entire school (about 75) is involved through announcements and the community workshop.

About 20 per grade level, with the younger grade levels tending to have more students than the upper levels. The average number of students per class is about 8. Grade levels 9-12 involved, three teachers trained.

One unit in chemistry class on how PV panels work, using solar kits with DC motors and solar cars to illustrate concepts; then the writing of a technical report on how PV panels work for assessment; then the installation (alongside professionals) of a household-sized (~3 kW) PV grid intertie system that meets 4-5% of the campus's electricity needs. This technical understanding of PV technology is balanced by an equal focus on ways to conserve energy (CF light bulbs, turning off lights when not in use, EnergyStar front-loading washing machines). Additionally, Midland addresses the environmental impacts of burning fossil fuels and visit a local power plant. The whole project culminates in a community workshop in which each sophomore gives a brief talk, collectively addressing the technical, economic, environmental, and practical aspects of solar energy. In spring 2005, it was attended by Midland's entire school body, and by ~100 community guests, totaling almost 200 people.

They were shared through the solar workshop on campus, by 6 students speaking at an MSR Partnership meeting in SB in Spring 2005, and by a project description in Solar Today Magazine (July/August 2005).

### **Leveraged Resources**

California has rebates and tax incentives for solar power, including a \$2.80 per watt rebate from the California Energy Commission for systems under 30 kW. There is also a 7.5% tax credit and, for commercially owned systems, accelerated depreciation. Using the cumulative solar installation figures above and an average of \$3.20 per watt rebate (rebates were higher a year ago), approximately \$19.45 million in rebates were absorbed in Santa Barbara County. An additional \$388,000 in tax credits was utilized, assuming an average cost of \$8.50 per watt for all installations.

Additionally, the Community Environmental Council's energy program has placed solar power at the top of its priority list for the next two years and we are engaged in many activities related to our energy program more generally that will strongly affect the development of solar power in our region. The Council feels strongly enough about its new energy program that it has decided to self-fund (from our endowment) up to \$500,000 over

the first three years of the program. A significant portion of this amount will fund activities related to solar power.

### **Outreach**

We sponsored and organized a seven week lecture series focusing on our regional goal of becoming fossil free by 2033, and highlighting solar power in one of the lectures. Nobel Prize winner, Walter Kohn, of the University of California, Santa Barbara, was our keynote speaker at that lecture. Approximately 300 people attended the solar lecture.

We have prepared a one page fact sheet, entitled Go Solar!, which we have distributed at many events. We also have completed our energy program brochure, printing 1500 copies of this glossy color 12 page booklet ([www.fossilfreeby33.org](http://www.fossilfreeby33.org)), and have distributed approximately 500 thus far. We will soon be mailing about a 1000 information packets to targeted homeowners and business owners whom we have identified through our aerial survey as having desirable rooftops for solar.

We have had numerous articles, press releases and opeds over the last year relating to solar power, including 9 mentions of our Fossil Free By '33 program and four opeds by CEC staff in the Santa Barbara News Press; one oped in the weekly Independent as well as at least two mentions of our program in articles; a number of letters printed in the Montecito Journal, another weekly; a monthly newsletter in which there is always at least one story about our energy program; and a number of radio and TV appearances.

In addition to our lecture series, we sponsor our local Earth Day celebration, whose theme this year was renewable energy. We have also lectured at conferences and other gatherings, bringing our total of public events relating to solar power to five.

### **New and Noteworthy Accomplishments**

The City of Santa Barbara, at our urging, agreed to join the Mayor's Climate Change Agreement, committing the city to examining its greenhouse gas emissions and setting reduction targets. As this process is completed, solar power will be a strong component of the reduction plan.

### **Activities Underway**

These are numerous: developing a business plan for an enterprise that would finance solar systems for end users and thus eliminate the up front cost to the end user entirely;

developing a local rebate program or “Sunny Day Fund” to supplement state and federal solar incentives; educating local homeowners associations, developers and architects about solar power and their limitations under the Solar Rights Act from blocking solar projects; working with local governments to remove permitting barriers to solar power and to issue over the counter permits.

### **Upcoming Events**

We continue to convene subcommittees to address the barriers to solar in our region; we will convene our next general partnership meeting next month.

### **What We Could Use Help With**

Financial barriers remain the largest hurdle to solar power in our region and we are working on ways to reduce those barriers.

### **Progress Toward Our MSR Goal**

We are on target. With 125 systems installed since 2004, and a goal of 750 roofs by 2010, we will meet our target by 2008 or 2009 assuming installation rates remain the same. However, with the increasing popularity of solar power, we hope to achieve our goal significantly earlier than originally planned.

# Island of Hawaii Million Solar Roofs Partnership

## Partnership Lead Organization

Contact Person: Patrick Moore, Administrator  
Contact Organization: Hawaii Electric Light Company  
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Email Address: pat.moore@helcohi.com

## Other Partners

- County of Hawaii
- State of Hawaii Department of Business, Economic Development and Tourism
- U.S. Department of Energy
- ProVision Technologies
- The Alternate Source
- Renewable Energy Services, Inc.
- Vicki Vierra Graphics
- Hawaiian Solar and Plumbing

## Year of Formation

1997

## Million Solar Roofs Installation Goal

20,000

The Island of Hawaii MSR Partnership will support the goals of the MSR Initiative and will identify local barriers to the adoption of solar technologies and will work in a collaborative fashion to remove those barriers along with promoting solar technologies.

## Cumulative Installations

Total: 3214

Solar water heaters:

Through 6/30/05: 3187 units of at least 32 sq. ft.

PV:

Through 12/31/04: 27 units, Capacity – 989 kW

## Solar Schools

- 5 classes per year are exposed to solar projects and lesson plans
- Average number of students per class - 20
- Grade levels – 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>
- Number of teachers trained - 5
- The PowerQuest solar curriculum is available to the teachers and others at <http://powerquest.heco.com/>
- Three of the four Sun Power for Schools public schools have real-time educational displays of solar system output. Information collected from a number of schools participating in the Sun Power for Schools program is available on line at [www.heco.com](http://www.heco.com).

## Leveraged Resources

Through the Hawaii Electric Light Company's Residential Efficient Water Heating Program, a \$1000 rebate is provided to qualifying residents installing solar water heaters. For 2004 this amounted to \$401,000 of incentive payments. A State of Hawaii tax credit of 35% up to a maximum of \$1,750 for residential solar systems and \$250,000 for commercial solar systems is available. The availability of these funds is promoted through the local MSR website as well as other MSR partner activities.

The Island of Hawaii MSR Partnership has used MSR grant funds to design, build, and install two educational displays for the Natural Energy Laboratory of Hawaii's (NELHA) Gateway Outreach Center.

## Outreach

Now workshops were held during this report period. Six news articles featured the Gateway Outreach Center PV installation or educational displays. The Sun Power for Schools program was promoted along with solar water heating at two community events with an attendance of approximately 2000.

## New and Noteworthy Accomplishments

The partnership's most recent accomplishment was the installation of two educational displays at NELHA's Outreach Center May 17, 2005. One display, *Hydrogen Fuel From Sunshine and Water*, depicts how hydrogen, produced from solar electricity, can be used as fuel for vehicles such as buses and the space shuttle. The second display, *Live a Low-Energy Lifestyle in Comfort*, illustrates



an energy- and environmentally-conscious Island home that incorporates photovoltaics, solar water heating, techniques for natural ventilation, efficient lighting and appliances, and more. A write up of this project was featured in the June 17 IREC/MSR E-Newsletter.

### **Activities Underway**

The Island of Hawaii MSR partnership current project is the development of a survey to be used for visitors viewing the MSR educational displays at the NELHA Outreach Center. In addition, the installation of a 1kW PV system under the Sun Power for Schools program is planned for installation at Na'alehu, Hawaii by year's end.

### **Upcoming Events**

A partnership meeting is being planned for 4<sup>th</sup> quarter 2005.

### **What We Could Use Help With**

The Island of Hawaii MSR partnership could use help with ways to encourage the local solar industry to report MSR qualifying solar systems.

### **Progress Toward Our MSR Goal**

The partnership realizes that there are a number of uncounted PV and solar water heating systems that have been installed on the Island of Hawaii since 1997. When these are accounted for, the partnership feels that we will be closer to meeting the partnership's goal. Work will continue to get as many qualifying installations as possible reported. However, a sluggish economy over the past years coupled with the high cost of living on the Island of Hawaii has hindered adoption of solar technologies.

# Kauai Million Solar Roofs Partnership

## Partnership Lead Organization

Contact Person: Edwin Nakaya, Manager, Key Accounts

Contact Organization: Kauai Island Utility Cooperative

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Website Address: [www.kiuc.coop](http://www.kiuc.coop)

## Other Partners

- Kauai County (Energy Extension Service, Housing Agency)
- Kauai Economic Opportunity (KEO)
- Kauai Community Federal Credit Union (KCFCU)

## Year of Formation

2000

## Million Solar Roofs Installation Goal

500 solar water heating systems installed by 2010.

## Cumulative Installations

- 2004 installations: 57 solar water heating systems, 8 PV NEM systems (32.9 kW)
- Cumulative installations through 2004: 454 solar water heaters, 23 PV NEM systems (75.3 kW)
- In 2004, KIUC provided \$800 rebates for SWH installations by participating contractors.

## Solar Schools

One high school has solar water heating for its athletic building. During 2004, KIUC made informational presentations on solar and other renewable energy topics to eight ninth grade science classes, reaching 180 students. In addition to the KIUC presentations, students engaged in web-based research, construction on models and displays of alternate energy resources, and competitive debate on the “best fit” of various renewable energy applications for Kauai.

## Leveraged Resources

For income-eligible households, KEO will pay the entire balance of the SWH installation cost after KIUC’s \$800 rebate. For an upcoming loan program, KIUC will pay the interest cost for SWH loans administered by KCFCU or Kauai County Housing Agency, essentially providing zero interest financing for five years.

## Outreach

Information about our solar water heater and NEM programs was included in KIUC’s informational booths at the annual Contractors Association of Kauai Builders Expo, the Kauai Farm Bureau Fair, and the DOE Adopt A School Education Celebration. Program information is also included on our website ([www.kiuc.coop](http://www.kiuc.coop)). No participant counts are available.

## Activities Underway

A survey of 400 Kauai households was completed in January 2004 regarding their understanding, perception, and attitudes about solar water heating. The results give insight to barriers to SWH installation and identify a number of consumer clusters that require different marketing approaches. The survey was partially funded by MSRI.

## Upcoming Events

Rollout of no-interest financing program for solar water heaters during second half of 2005.

## What We Could Use Help With

The largest barrier remains the high cost of solar water heating and photovoltaic systems. Also significant is the high cost of living in our service area that forces many consumers to make tough economic choices between other basic necessities and major purchases.

## Progress Toward Our MSR Goal

We expect to reach our goal of 500 solar water heater installations during 2005 and surpass it in the following years.

# Island of Maui Million Solar Roofs Partnership

## Partnership Lead Organization

Contact Person: Stefanie Tome

Contact Organization: Maui Electric Company

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Fax Number: (808) 872-3235

Email Address: [stefanie.tome@mauielectric.com](mailto:stefanie.tome@mauielectric.com)

Website Address: [www.mauielectric.com](http://www.mauielectric.com)

## Other Partners

MECO has builder partners that signed MOUs good for one year to offer solar as a standard part of the building package. Although all MOUs are past the one year, MECO believes most builders continue to offer the solar package.

## Year of Formation

1998

## Million Solar Roofs Installation Goal

Island of Maui MSR goal is 6300 solar systems by the year 2010.

## Cumulative Installations

In 2004, MECO's partnership installed 861 solar water heating systems. MECO's program was approved in 1996 by the Hawaii Public Utilities Commission. Since that year, there have been about 5,928 solar water heating installations through 2004.

## Solar Schools

Six schools: Baldwin High School, Molokai High School, Lahainaluna High School, Lokelani Middle School, Maui Waena Middle School, Iao Intermediate School. The last three have PV panels for area lighting only.

## Leveraged Resources

MECO provides a \$1000 rebate for each system installed through its approved solar water heating contractors.

In addition, MECO has received \$1.1 million in grant funds from the USDA to install solar water heating on the island of Molokai. About 60 systems have been installed since June 2004, with approximately 65 more pending.

MECO has also received \$450,000 from the County of Maui to administer as an interest free, revolving loan fund for the installation of solar water heating, resulting in approximately 200 installations.

## Outreach

MECO does at least 2 events every year: the Maui Contractors' Association Homeshow as well as MECO in Our Community. We have also held the LEED workshop, address trade and community groups, and teach classes in energy efficiency. We also pursue grant opportunities to install solar as well as to educate the public on the benefits of solar.

## New and Noteworthy Accomplishments

Education and financing continue to be the keys to facilitating more solar installations.

## Activities Underway

- Implementation of Solar for Molokai, MECO's \$1.1 million grant from USDA for solar installations on the island of Molokai.
- Continuing to work with developers and lenders in the very active new construction market.
- Working with the County of Maui to allow use of zero interest loan funds to renters (for solar installations).

## Upcoming Events

- Partnership meetings, solar fairs, exhibits, training programs, *etc.*
- MECO in Our Community, possibly a followup LEED workshop.

## What We Could Use Help With

Staffing, we are a small staff under a regulatory body (Hawaii Public Utilities Commission) that has record keeping and reporting requirements.

## Progress Toward Our MSR Goal

We will likely reach our goal of 6300 systems in 2005.

# Idaho PV4You Solar Working Group

## Partnership Lead Organization

Contact Person: (Ms.) K.T. Hanna, Grants/Contracts Specialist

Contact Organization: Idaho Energy Division

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Website Address: [www.idwr.state.id.us](http://www.idwr.state.id.us)

## Other Partners

Association of Idaho Cities

Bonneville Power Administration

Fall River Rural Electric

Idaho Department of Administration

Idaho Power Co.

Idaho Rivers United

Kootenai Electric Cooperative

Northwest Power Planning Council

Solar Electric Hybrid

Sunelco

Aurora Power and Light

EnerTech Services

Idaho Council on Industry and the Environment

Idaho Department of Water Resources

Idaho Public Utilities Commission

Idaho State University

Nez Perce Tribe

Solar Cascade

Solar Solutions

## Year of Formation

1998

## Million Solar Roofs Installation Goal

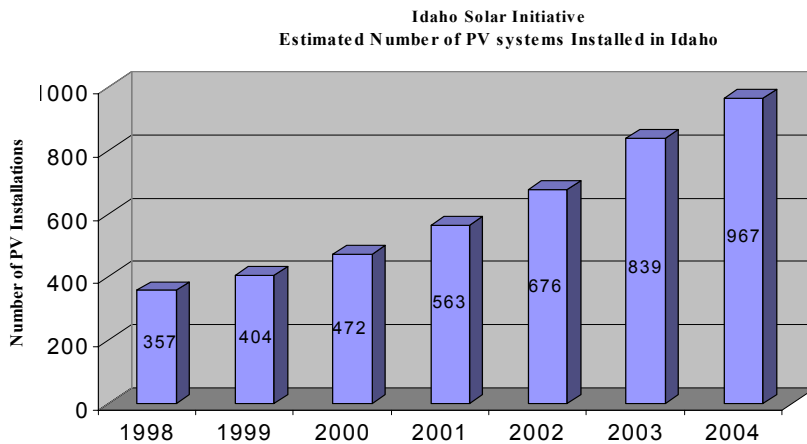
5,000 solar roofs by 2010

Mission statement:

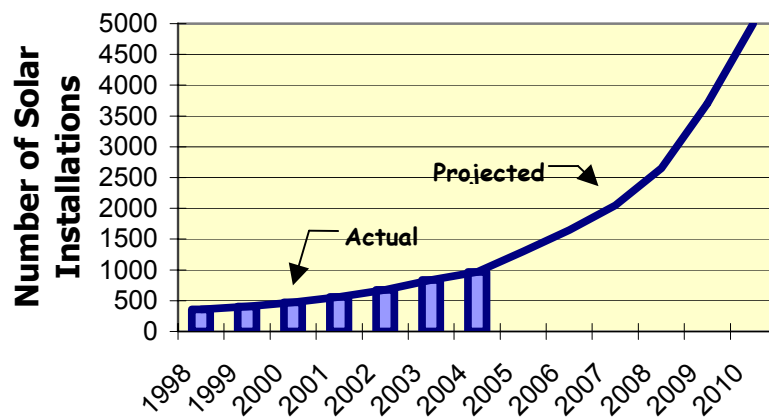
Promote the cost-effective utilization of PV as an energy source through a collaborative process among major stakeholders in Idaho.

## Cumulative Installations

The Idaho Energy Divisions surveys dealers at least twice a year, asking for the number of PV and thermal systems installed. The following data were collected in mid-April 2005. (see charts)



### Idaho Solar Initiative PV Systems in Idaho (200 Watts or Larger)



- A. Only three known thermal systems installed in the state.
- B. Data include PV on buildings and water pumping.

#### Solar Schools

Castleford School, with a total enrollment of 377, PK-12, is the only Idaho school with an installed PV system that is an integral part of the curriculum. Class sizes range from 25 in first grade to 17 in the eighth grade. At least 10 of the 12 grades at the rural Twin Falls County school are exposed to data from the system in lessons; the science teacher told the Idaho Energy Division that even second graders are using the system.

The number of teachers trained on the system is unknown; the division has not developed any curriculum tools or resources for the school. Computer training begins in kindergarten, and the display of system output is accessible via web, at <http://castlefordschools.com/solar>.

## **Leveraged Resources**

The Idaho Energy Division offers a 4% loan for renewable energy projects. A new program offers qualified Idaho PV installers/dealers a rebate of \$75 for an on-grid site assessment and \$175 for an off-grid site assessment. The staff has promoted the U.S. Department of Agriculture's Farm Bill, which offers financial assistance to renewal energy projects, such as solar.

## **Outreach**

In 2004 and 2005 the Idaho Energy Division:

Co-sponsored and participated in

- Harvesting Clean Energy workshops in Portland 2004 and Great Falls 2005. Farm Bill mini workshops to promote renewable energy development, including solar. March 2005, Boise, Twin Falls, Pocatello, Idaho Falls, Salmon, Coeur d'Alene and McCall. More than 250 attendees
- Idaho Sustainability Conference, March 2005, Boise. Staffed solar booth. 300 attendees
- Net metering workshop for solar and small wind, Twin Falls, April 2005. 50 attendees
- University of Idaho student engineering design competition, April 2000, Moscow. Served on judging panel and staffed solar exhibit.
- Governor's Conference on Rural Economic Development, May 2005, Idaho Falls. Made presentation on renewable energy generation. 250 attendees

Staffed booths in two major expos and fairs in 2004

- Alternative Energy Festival and workshops, August, Boise. 600 attendees
- INEEL annual science expo, September, Idaho Falls. 10,000 attendees

Hosted three PV teleconferences in Boise

- Hosted NABCEP test site in Twin Falls; 4 Idaho PV dealers are now NABCEP certified

Refreshed and updated the Idaho solar website, [www.idahosolar.org](http://www.idahosolar.org)

- Logged 2,597 hits between April and December 2004. Data are not available for the first three months of 2004. Between January – June 2005, there were 2,022 hits.

Printed over 1,000 brochures, flyers and folders

- Distributed 259 publications in response to 147 TA requests in 2004; between January – June 2005, there were 111 TA requests, and 741 solar publications mailed.

In both 2004 and in 2005, 1 press release related to solar; two of the Idaho Energy Buzz columns had solar content. There was one large PV rebate article written in June 2005 by the state's largest daily newspaper.

## **New and Noteworthy Accomplishments**

Utah Power and Light, which serves electrical customers in Eastern Idaho, now offers net metering. Education is still our primary focus. The division is offering partial scholarships to rural electric cooperatives to attend Solar Summit 8 in Washington for PV training. The new PV site assessment rebate is getting a lot of attention from residents who had never seriously considered solar before.

**Activities Underway**

The division is working on various training courses and exhibits/fairs, along with the PV rebate for solar site assessments.

**Upcoming Events**

- Alternative Energy Festival, Boise, September 2005
- Sustainability Conference/exhibit, Sun Valley, September 2005
- Idaho National Laboratory annual science expo, Idaho Falls, fall 2005
- Train the Trainer workshop in conjunction with the University of Nevada, Boise, fall 2005
- PV for utilities workshop in Coeur d'Alene, fall 2005
- Solar Summit 8 in Washington, fall 2005.

**What We Could Use Help With**

Barriers and issues include the economy; many of our large employers, such as HP, have laid off hundreds of workers. Agriculture is still slumping. The state offers very few incentives to using renewable energy resources. HB 110, passed in this session, offers tax exemptions to renewable energy producers, but only for 25 kW projects and above. There is interest in lowering that figure for solar and this may be introduced into the legislature next year.

**Progress Toward Our MSR Goal**

Idaho is on target, but just barely. However, as the economy improves and people become more familiar with renewable energy options, solar system installations. As a result of the new PV site assessment rebate, there is increased interest in the solar option.

# Nevada Million Solar Roofs Partnership

## Partnership Lead Organization

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Coordinator

Contact Organization: University of Nevada Reno

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## Other Partners

- Nevada State Office of Energy
- City of Reno\*
- Sierra Pacific Power/ Nevada Power
- Desert Research Institute
- Great Basin College\*
- Sunrise Sustainable Resources
- UNLV
- Sierra Green Building Association\*

## Year of Formation

1984

## Million Solar Roofs Installation Goal

The Nevada MSR program supports statewide alliances to increase public awareness about solar, and encourage and support solar installations for commercial and residential applications in the state.

The MSR commitment for Nevada is 10,000 rooftop equivalents. Our efforts continue to focus on public education and outreach programs that support the Green Power program for solar on schools, the SolarGenerations solar incentive program administered by Sierra Pacific and Nevada Power companies under funding from the Nevada legislature, grassroots initiatives, and other public education and outreach programs to make solar power a realistic goal for installations in our state.

## Solar Schools

To-date, there are 7 schools in Washoe and Clark County and in rural areas of the state with solar and wind on the school. In addition there are plans to add another 3-4 schools under the new demonstration program just approved by the legislature in June, 2005.

Over 700 classes per year are directly exposed to solar projects through the Green Power Program. An additional over 50 classes are exposed to solar projects through the Nevada MSR outreach to schools, through the course for teachers on Energy and Matter funded through No Child Left Behind education funds, and other related outreach.

Average number of students per class is approximately 35 children. Grade levels K-12 because installations exist for elementary, middle and high schools in the state

All science teachers in the schools have received formal training within one year of the system installation, and in addition other teachers are encouraged to participate in on-campus enrichment programs for teachers. Over 30 additional teachers have received additional training through the Nevada MSR-supported programs.

The Nevada MSR partners developed a curriculum for grades 4-6, The New Crusaders Renewable Energy Education Program that is sold through the American Public Power Association and distributed locally through the MSR program. These resources are being distributed nationally. In addition, the program coordinator served as a reviewer for the California Energy Commission funded, Energy and the Environment text for middle school that is distributed through the Educators for the Environment.

Last, the Nevada MSR has 2'x2' panels used to construct solar demo units that are used for outreach activities in summer camps, in school visits, in other programs for children including Earth Day, Solar Expos, and museums and other outreach venues in the state. These demo units were shipped to the Kauai, Hawaii Partnership for their use in the current year.

The curricula have been distributed through the peer exchanges and through distribution to other states both through MSR and through other DOE programs. Last, a professional development program for teachers sponsored by the Idaho MSR Partnership will be taught by the Nevada MSR partners at the Idaho Renewable Energy Fair in September in Boise.



Through partners Sierra Pacific and Nevada Power and the Green Power Program for schools, the students are provided with real-time monitoring and with data exchange among the green power schools.

### **Leveraged Resources**

- Wrote STAC grants with the City of Reno, with the Arizona Department of Commerce and Energy for innovations in public demonstration of solar technology for government use
- Collaborated with participants of the Nevada Southwest Energy Program who are providing public outreach and education through their new program initiatives to ensure that the efforts under Nevada MSR compliment those of their grant with their emphasis placed on geothermal and wind while Nevada MSR is responsible for the solar outreach component
- Worked with Great Basin College in Elko NV to host the first-ever solar workshop in Elko, NV. This event, supported by Sandia National Laboratory was held in June, 2005 and was videoconferenced statewide.
- Work closely with the Nevada State Office of Energy to support stakeholder organizations including Sunrise Sustainable Resources and Sierra Green Building Association to support their public outreach and education programs, and to ensure the quality of those outreach efforts including assisting with program planning and delivery, financial assistance from their programs together with that from MSR have allowed the teams to bring in national quality speakers, and enhance the overall program offerings.
- Work with other public agencies for their events including at Earth Day, at Washoe County Clean Air Day and other public outreach events funded through local organizations and public agencies.
- Worked closely with the SolarGenerations Program in the state for builder and inspector training, for teacher training, and for customer information workshops
- Worked closely with the College of Education and the school district to develop course materials appropriate for teaching at the upper

elementary and middle school levels that are valuable for alternative energy education

- Taught a course with the Boys and Girls Club for Energy Efficiency and Alternative Energy to introduce their members to engineering and science as a career path. This was the final offering co-funded through a US EPA grant for outreach to Hispanic families and through Nevada MSR.
- Collaborated to provide solar expertise and support for outreach programs for teachers supported through a Hewlett Foundation grant for improved educational resources for undergraduate programs.
- Exploring new curriculum opportunities for courses through the community college under a new workforce development grant to DRI and the community college that will institute a new renewable energy technology degree program in the area

### **Outreach**

- Co-sponsored 4 workshops for builders and consumers with the SolarGenerations incentive program attended by approximately 20 people per session, co-sponsored 3 public outreach events to provide solar education for consumers with approximately 300 attendees, Earth Day with over 10,000 attendees, and various school visits and related K-12 programs for over 200 kids, estimated attendance over 11,000
- Average number of website visitors – supported by the power company so we don't track it
- Because the power company distributes this information through their web site, we don't maintain this data
- Number of news articles, press releases - 4

### **New and Noteworthy Accomplishments**

The most important accomplishment for the current year is the enhanced alliances among MSR partners that has led to renewal of the statewide incentive programs, support for the educational components of those programs.

The Nevada MSR program coordinator role has changed from one of active leadership for incentives, for education and for outreach to one of support for community initiatives. Examples of this include the STAC grant submitted by the City of Reno in which Nevada MSR took a support role in initiating new solar installations on the new ice rink, the solar incentives program support and partnership for education initiated by the power company, and the proposal that was jointly submitted with Arizona for their MSR program.

This change from leadership by MSR to leadership among the larger community with support from MSR will radically improve the adoption rates for solar. When it's a demand-driven effort as it now is, the adoption rate will be significantly improved. In fact, more solar installations have been logged during the past 12 months than were on the books since inventory started being collected. We also completed a joint proposal with the Arizona Department of Commerce and Enrgy for a STAC solar demonstration facility.

#### **Activities Underway**

- Idaho Energy Expo and alternative energy course for teachers
- Nevada Smart and Sustainable Living Expo, Oct 1, 2005

#### **Upcoming Events**

Nevada Smart and Sustainable Living Expo Oct 1, 2005

#### **What We Could Use Help With**

We continue to rely on the expertise of the national labs, both directly through their assistance programs and through the Nevada Southwest Energy Program.

#### **Progress Toward Our MSR Goal**

Thanks primarily to the SolarGenerations incentive program for solar pv, we have experienced a significant improvement (over 300%) in number and size of installs as a direct result of the solar incentives program that is barely 3 years old. It was recently re-enstated for an additional 3 years starting in January, and we are actively working with the power company to support this effort. It promises to put us on track to meet our goals through the residential and commercial programs it supports.

# Tahoe-Nevada Area Million Solar Roofs Partnership

## Partnership Lead Organization

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Website Address: [www.tdpud.org](http://www.tdpud.org)

## Other Partners

Truckee Donner Public Utility District

## Year of Formation

2005

## Million Solar Roofs Installation Goal

The Partnership commits to the installation of a combined total of 500 rooftop solar installations in an area that includes portions of Nevada and California not covered by other MSRI Partnerships. The area includes Northern Nevada not served by Sierra Pacific and the Northeastern and Central Eastern part of California east of the Sierras, which includes TDPUD service territory and the service territories of Lassen Municipal Utility District (LMUD) and Plumas-Sierra Rural Electric Cooperative (PSREC).

The Partnership has three major objectives: (a) Implementation Plan Development, (b) Partnership Expansion, and (c) Public Participation. The Implementation Plan will provide the pathway to the installation of at least 500 solar rooftop units in the Partnership's geographical area. The other two objectives will assist in the development of the Implementation Plan. In addition Partnership Expansion and Public Participation will enhance the number of solar installations by actively encouraging ownership in the MSRI Objectives.

## Solar Schools

None currently, but they are a target for the Partnership

## Leveraged Resources

- Utility Energy Forum - \$15,000
- Truckee Donner PUD - \$15,000

## Outreach

The Partnership will begin outreach activities in October. Currently, working with the City of Grass Valley to join the Partnership.

## New and Noteworthy Accomplishments

Since the Partnership was formed, outreach efforts have begun to include Cities, Counties, Contractors, Utilities and other stakeholders to join the Partnership.

## Activities Underway

The Partnership is planning public meetings, surveys, and face to face interviews with local community leaders, to get valuable feedback on ways to increase the local demand for solar systems and improve the Implementation Plan.

The Implementation Plan will address all MSRI Objectives include breaking down the barriers to solar energy applications, supporting net metering for PV, developing education and outreach tools, developing or modifying codes and covenants, outreaching to the building community, promoting local zero or near zero energy home or building initiatives, and increasing utility support for PV and other solar applications.

## Upcoming Events

- Smart and Sustainable Living Expo – October 1, 2005 in Reno, NV
- Stakeholder Comment Meetings – Monthly beginning October 2005 in Truckee, CA
- Solar Installation Hands on Training – Three meetings, two of which are TBD. One is May 2, 2006 in Truckee

## What We Could Use Help With

We haven't hit any snags yet, but then we are just getting started. We will have a better idea in the next reporting cycle.

## Progress Toward Our MSR Goal

We are on target with all the enthusiasm that comes from beginning a new adventure.

# Oregon Million Solar Roofs Coalition

Partnership Lead Organization

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## Other Partners

Each partner has been asked to submit a one-page description and outline of their own strategy to support solar energy in Oregon.

### Partners with Completed Solar Strategies

**OREGON DEPARTMENT OF ENERGY**

**OREGON SOLAR ENERGY INDUSTRIES ASSOCIATION**

**U OF O SOLAR RADIATION MONITORING LABORATORY**

SOLAR ENERGY ASSOCIATION OF OREGON

THE LARCH COMPANY

SOLWEST/EORENEW

DOUGLAS COUNTY GLOBAL WARMING COALITION

AMERICAN INDIAN ENERGY INFORMATION

BLUE MOUNTAIN ENERGY, LLC

EMERALD PEOPLE'S UTILITY DISTRICT

AWAITING SOLAR STRATEGY OR NEW MEMBER

BONNEVILLE POWER ADMINISTRATION

CITY OF ASHLAND

KLAMATH SOLAR ASSOCIATION

UMPQUA SOLAR ASSOCIATION

SOLAR CREEK

\*ENERGY OUTLET

\*ENERGY TRUST OF OREGON

\*OREGON RENEWABLE ENERGY CENTER

\*EUGENE WATER AND ELECTRIC BOARD

\*CITY OF ASHLAND

\*KLAMATH SOLAR ASSOCIATION

### **Year of Formation**

1999

### **Million Solar Roofs Installation Goal**

50,000 systems

The coalition's mission statement is: To advance the use of solar energy through public and professional education, removal of institutional barriers and effective use of financial incentives.

The Oregon coalition is based on the theme "Solar Works for Oregon." Our implementation plan focuses on four key areas – technical issues, information, partners, and incentives. Our original goal was to see 50,000 systems installed by 2010. To date more than 2,500 solar installations have been documented in Oregon to date since the inception of the MSR Coalition.

The Oregon Million Solar Roofs (MSR) Coalition focus in past years was on solar contractor licensing and consumer awareness. In 2002 we developed specialty licenses for electrical and thermal systems, and helped develop photovoltaic and solar domestic hot water incentive programs. In 2003 we completed the apprenticeship program for the solar specialty licenses, and began a market assessment for zero net energy homes. In 2004, we began work with builders to increase the market penetration of solar systems in new Oregon homes. Each year we have improved and expanded the annual statewide solar home tours each year that we have participated in the MSR Coalition.

### **Cumulative Installations**

Tracking is provided via database of tax credit eligible systems. Systems installed without use of state tax credits have not been tracked. The following table is a summary of systems by year as of April 2005. These systems represent a total investment in solar roofs in excess of \$21 million.

YEAR	PV Systems	Pool Systems	SDHW Systems	Cumulative
1997	1	61	66	128
1998	9	47	124	180
1999	14	111	219	344
2000	26	84	103	213
2001	68	121	243	432
2002	40	101	184	325
2003	99	94	97	290
2004	177	80	106	363
2005	98	27	96	221
SUM	532	726	1,238	2,496

### **Solar Schools**

School program participation is done by the individual coalition members, we do not track this level of detail. Dozens of teacher presentations are given each year through the members.

New for 2004-5 is a educational CD packet developed by SolWest/EORenew and Bonneville Power Administration and distributed through the Solar Energy Association of Oregon, contact Tanya Parks (503) 231-5662 form more information.

### **Leveraged Resources**

School program participation is done by the individual coalition members, we do not track this level of detail. Dozens of teacher presentations are given each year through the members.

Please note any use of financial incentives or funds separate from resources used for other Partnership activities (for example, utility incentives, state rebates or other sources of support). Try to be specific about how much of the total fund amount the Partnership has helped people or organizations to access, not the total value of the fund.

### **Outreach**

Each community that participates in the annual solar tour of homes receives \$500 support from the grant funds. This year we have 11 participating communities. Each community coordinates workshops, tour information, and other

This year's tour magazine will have 25,000 copies printed. These copies are distributed around the state before, during and after the tour.

### **New and Noteworthy Accomplishments**

Three specialty licenses now exist for solar energy installers in Oregon. These are as follows

- LRT = Limited Renewable Energy Technician
- SOL = Solar water heating installer
- LRT/SOL = Combined solar electric and solar thermal technician

Curriculum development is nearing completion for the Lane Community College 2 year renewable energy program

The Oregon Institute of Technology has just begun a 4 year engineering degree (BS) in renewable energy with a curriculum that focuses on applied solar, wind, geothermal and fuel cell technologies

The Energy Trust of Oregon incentive program announced in June, 2005 that in just two years it has seen the installation of 1 MW of photovoltaics.

### **Activities Underway**

- 2005 Solar Home Tour with 11 participating communities
- 2005 Solar + Green Magazine featuring solar technologies and solar tour homes
- Home Builder Workshops on Solar Energy (10 remaining)

### **Upcoming Events**

- SolWest Renewable Energy Fair
- Solar Home Tour events Sept 13<sup>th</sup> – October 15<sup>th</sup>

### **What We Could Use Help With**

Largest barriers have been overcome, the little ones now are many here is a partial list:

- Distance learning opportunities for solar equipment installers – we do not have enough licensed and experienced installers and those who are interested do not all live near the one community college that offers courses for future solar energy technicians.
- Simplified utility disconnection requirements for small PV systems. This will require careful negotiations with the Public Utility Commission, safety engineers, etc.
  - Housing assessment to include value of solar equipment. Home owners need to know that their investment has value if the house is sold. A study is needed to show how much value is added to a home because of the use of solar.
  - Insufficient funding for community solar energy fairs/workshops. Fairs and workshops are the best way to reach the curious public. Each dollar spent leverages many times as much value of volunteer work and interest.

### **Progress Toward Our MSR Goal**

Progress continues, but not always as smoothly as hoped. The goal of 50,000 systems was clearly too large, and incentive programs too longer than expected to begin. The current lack qualified installers has proven to be a real challenge. Solar water heating installation numbers have dropped because of an aging workforce that is finding better money doing radiant heating systems than solar thermal.

Our current focus is shifting to new construction and opportunities to get custom homes to include solar energy as part of the project. If we can gain significant share of this market we believe it will pull interest from the renovation and speculative home building market.

# Washington Million Solar Roofs Collaborative

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## Other Partners

- Washington State Department of Trade and Economic Development
- Utility members
- Clark Co PUD
- Clallam Co. PUD
- Benton REA
- Chelan PUD
- Franklin Co. PUD
- City of Ellensburg
- Grant PUD
- Ferry Co. PUD
- Kittitas PUD
- Klickitat PUD
- Peninsula Power and Light\*
- Okanogan. Co-op
- Okanogan PUD
- Seattle City Light

## Associate Members:

- Awish
- Bonneville Power Administration
- Northwest Renewable Energy Festival

## Industry Partners:

- The Cottage Company
- Outback Power Company
- Zantrex, Inc.
- Mithun Architects\*
- Blip, Associates\*
- Roger Catz and Associates\*
- Master Builders\*

## Year of Formation

1997

## Million Solar Roofs Installation Goal

Our goal is to install 20,000 grid connected solar electric systems by 2010 in the State of Washington

## Mission Statement:

The Mission of the Washington MSR Collaborative is to act as a primary catalyst in transforming grid connected solar technologies from a niche activity by early adopters to the power system of choice in communities throughout Washington

## Cumulative Installations

As of April 15, 2005, the State had a total of approximately 450kW of reported, grid-connected solar electric. This represents a growth of approximately 515% over 2004's 383 kW. The installed systems during 2005 is about 67 kW

This is a significant decrease over the 2003 – 2004 growth rate of 52%. This probably represents a saturation of the early adopter group willing to act without incentives. Luckily, this session the Washington legislature adopted significant incentives.

We continue to only promoting solar electric systems as resources require a carefully defined scope of work.

## Solar Schools

We installed 38 kW on schools during 2004-2005

## Leveraged Resources

We have worked very closely with Seattle City Light and other utilities this year. They have contributed through membership in the Northwest Solar center about 22,000 dollars. Additionally we have partnered on about 380,000 dollars worth of hardware, primarily with Seattle and Chelan County.

## Outreach

5 six hour classes on solar for homeowners/ with hands on experience, average attendance –30



3 BIPV trainings with Steven Strong as instructor, including charette for UW School of Arch. Building renovation total attendance, attendance 48

The Seventh Solar Summit conference In Seattle, Attended by 78 utility representatives, builders, and activists

The installation of 38 school systems in cooperation with Chelan PUD

4 community systems, including 10kW at UW center for Urban Horticulture in Seattle. Assistance is being provided to Seattle City Light for installation;

Technical support is being provided to Ferry County for their proposal to RWE for the Location of a 100mW module plant

Adoption of the Chelan Co. PUD SNAP program by three public utilities

Development and preparation work was provided for the City of Ellensburg for the creation of a community owned PV power plant located along an interstate highway.

Co-sponsored with Materbuilders “Built Green” Confrence with focus on “building a Renwable 21<sup>st</sup> Century” approx 240 attendees.

### **New and Noteworthy Accomplishments**

The partnership provided technical assistance to the state legislators in drafting two landmark pieces of state legislation: SB 5111 and SB 5101. These bills were developed by the collaborative partners working closely with legislative staff and the legislature. SB5111 provides tax brakes for manufacturers of solar technologies and 5101 establishes power production incentives modeled on the German “feed-in” laws. 5101 creates a mechanism that could pay out as much as \$100,000 million dollars in small scale solar incentives to Washington homeowners, businesses and local governments. These two pieces of legislation radically reshape the playing field in Washington State.

### **Activities Underway**

- Implementation of 5111 and 5101
- Support for WSU Solar Decathalon
- Development of Washington Solar Industries lists on NWSC website
- Development of Cloudy Climate test array
- Various utility demonstration projects.

### **Upcoming Events**

- Summit #8
- Roadmapping efforts
- State wide training and workshops

### **What We Could Use Help With**

While the legislation provides funding for managing implementation for 5111 and 5101, this funding only covers processing and verification of applications. Success will require a significant public awareness effort and additional training on a state level. Without continued support for FTE from MSR these efforts will only enjoy a part of the success possible.

### **Progress Toward Our MSR Goal**

With the passage of SB5111 and 5101 we consider our coalition to be in a very good position for successful progress in the next few years. With this legislation in place it is time for Washington to develop a new roadmap for the state and its solar industries

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